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Overgeneral autobiographical memory in children and adolescents exposed to trauma

Ferner, Harriet

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Volume I

Main Research Project and Service Evaluation Project

Harriet Ferner

Thesis submitted in partial fulfilment of the degree
of Doctorate in Clinical Psychology

Institute of Psychiatry, King's College London

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Main Research Project

Overgeneral autobiographical memory in children and adolescents
exposed to trauma.

Supervised by: Dr Patrick Smith

Second Supervisor: Dr Richard Meiser-Stedman

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1. Abstract

Background and Aims: Early posttraumatic stress reactions are distressing and disabling for a significant minority of children and young people. We aimed to explore the relationship between posttraumatic stress reactions, cognitive variables implicated by an adult cognitive model of PTSD (Ehlers & Clark, 2000), and overgeneral autobiographical memory; a phenomenon linked to depression and trauma in adults, but rarely explored in children.

Methods: Emergency department attendees (aged 8-18) and their parents were interviewed 2-6 weeks post-trauma. Children completed a diagnostic interview for acute stress disorder (ASD), and self-report depression and posttraumatic stress symptom severity questionnaires. Established statistical predictors of posttraumatic stress reactions were measured using child and parent self-report questionnaires. The Autobiographical Memory Test (AMT) (Williams & Broadbent, 1986) was used to assess overgeneral autobiographical memory (OGM).

Results: Among participants (N=43), 30.2% met ASD diagnostic criteria. Using step-wise linear regression analysis; avoidance, negative appraisals and, to a lesser extent, rumination accounted for over two-thirds of the variance of posttraumatic stress symptom severity scores in our sample. Rumination and to a lesser extent negative appraisals together accounted for 80% of the variance of scores in depression severity scores. AMT performance did not contribute significantly to these models. However, those with greater depression symptom severity retrieved fewer specific memories in response to positive cue words on the AMT ($p = .022$). Parental anxiety and depression did not significantly differ between ASD and non-ASD groups. Findings regarding prior emotional and behavioural difficulties were mixed.

Conclusions: Avoidance, negative appraisals and rumination, variables identified in adult cognitive models relate to early responses to trauma in children. Overgeneral autobiographical memory appears less important in this respect, but findings remain tentative at this stage.

2. Introduction

2.1 Summary

The introduction reviews current understanding of posttraumatic stress reactions in children. It then describes a prominent cognitive model, (Ehlers & Clark, 2000), shown to explain these reactions with a review of the evidence in children. Next, the phenomenon of ‘overgeneral autobiographical memory’ commonly associated with pathological posttraumatic stress reactions in adults is summarised, and the evidence in children discussed. Explanatory models of the overgeneral memory phenomenon are briefly described. Finally, the aims and hypotheses of the current study are summarised.

2.2 Phenomenology of children’s reactions to trauma

2.2.1 Prevalence of exposure to trauma in childhood

Children and adolescents are commonly exposed to traumatic events (American Academy of Child and Adolescent Psychiatry (AACAP), 2010; Costello, Erkanli, Fairbank, & Angold, 2002). A traumatic event is defined in the DSM-IV-TR as one in which a person “experienced, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others and the response involved intense fear, helplessness, or horror” (American Psychiatric Association, 2000, p. 424). Researchers investigating the prevalence of traumatic experiences defined in this way find rates to be high in children and young people (AACAP, 2010). For example, Copeland and colleagues (2007) found 68% of 1 420 adolescents had experience at least one traumatic event by the age of 16. Of these, 7.5% had experienced four or more (Copeland, Keeler, Angold & Costello, 2007). Studies using narrower inclusion criteria to investigate specific types of trauma such as exposure to violence, sexual assault, or burn injuries, similarly report high rates of such experiences among children and adolescents (e.g. De Young, Kenardy, Cobham, & Kimble, 2012; Kilpatrick & Acierno, 2003; Singer, Anglin, Song, & Lunghofer, 1995).

2.2.2 Children’s early reactions following exposure to trauma

Early reactions following exposure to traumatic events defined in this way are broad and include Acute Stress Disorder (ASD), early Posttraumatic Stress Disorder

(PTSD), anxiety and depression (e.g. Ellis, Nixon & Williamson, 2009; Copeland, et al., 2007; Meiser-Stedman, Yule, Smith, Glucksman, & Dalgleish, 2005; Suliman, et al., 2009). ASD refers to a number of symptoms that fall broadly into the following four core clusters: ‘dissociative symptoms’, ‘re-experiencing symptoms’, ‘avoidance’ and ‘increased arousal/marked anxiety’ and cause significant distress and impairment (APA, 2000; see Table 1). To warrant a diagnosis, these symptoms must last between two days and four weeks following a traumatic event (APA, 2000). Posttraumatic Stress Disorder (PTSD) is conceptually related to ASD, but diagnostic criteria place less emphasis on dissociative symptoms (Cardeña & Carlson, 2011; see Table 1). Additionally, the timescale for ASD and PTSD diagnoses differ. ‘Acute PTSD’ may occur between one and three months and ‘Chronic PTSD’ more than three months post-trauma (APA, 2000). Some researchers also refer to ‘early PTSD’ to describe those meeting PTSD diagnostic criteria within one month of trauma (e.g. Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007a). Other anxiety disorders such as Separation Anxiety and Specific Phobias may also occur following childhood traumatic events (e.g. Perrin, Smith, & Yule, 2000; De Young, et al., 2012). Mood disorders such as Dysphoria and Major Depressive Disorder have also been noted, and may present co-morbidly or independently of other anxiety disorders (e.g. Han et al., 2011; Suliman et al., 2009).

It seems likely that posttraumatic stress reactions manifest differently in children compared to adults, and also across different stages of childhood (Copeland, Keeler, Angold, & Costello, 2010; Salmon & Bryant, 2002). For example, younger children may have fewer cognitive and avoidance symptoms compared to older children (Fletcher, 1996), and may experience fewer flashbacks and episodes of dissociation (De Young, Kenardy, & Cobham, 2011). Additionally, they may display behavioural changes such as play re-enactment, aggression, separation anxiety and nightmares more frequently than children at later stages of development (Lieberman & Knorr, 2007; Salmon & Bryant, 2002; Scheeringa, Zeanah, Drell, & Larrieu, 1995). This may reflect differences in stages of development, for example very young children may find it harder than adolescents or adults to verbally describe internal affective states (Salmon & Bryant, 2002; Scheeringa, et al., 1995). Current ASD and PTSD diagnostic criteria seem to be somewhat insensitive to these developmental

differences in posttraumatic reactions (Byrant, Friedman, Spiegel, Ursano, & Strain, 2011; Friedman, Resick, Bryant, & Brewin, 2011a; Scheeringa, Zeanah, & Cohen, 2011).

Table 1. *DSM-IV-TR diagnostic criteria for ASD and PTSD (APA, 2000)*

ACUTE STRESS DISORDER	POSTTRAUMATIC STRESS DISORDER
A. Traumatic Stressor: both (1) & (2) necessary 1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self/others. 2. Response involved intense fear, helplessness, or horror.	A. Traumatic Stressor: both (1) & (2) necessary 1. as for ASD 2. as for ASD. <i>In children, this may be expressed instead by disorganised or agitated behaviour.</i>
B. peri/posttraumatic dissociative symptoms: at least three symptoms e.g. numbing, detachment, dissociative amnesia	N/A
C. Re-experiencing symptoms (at least one symptom) e.g. recurrent images, thoughts, dreams, illusions, flashback episodes, a sense of reliving, or distress on exposure to reminders of the event.	B. Re-experiencing symptoms: at least one symptom e.g. intrusive thoughts, or images <i>(in young children, repetitive play may occur in which themes or aspects of the trauma are expressed)</i> , recurrent distressing dreams of the event <i>(in children, there may be frightening dreams without recognizable content)</i> , reliving <i>(in young children, trauma-specific re-enactment may occur)</i> .
D. Avoidance: at least one symptom Marked avoidance of stimuli that arouse recollections of the trauma (e.g. thoughts, feelings, conversations, people, places, activities)	C. Persistent avoidance and numbing: at least three symptoms e.g. efforts to avoid thoughts, feelings, conversations, activities, places, or people that arouse recollections of the trauma, feeling of detachment or estrangement from others, sense of foreshortened future.
E. Increased arousal/marked anxiety: at least one symptom e.g. difficulty sleeping, irritability, poor concentration, motor restlessness, hypervigilance, exaggerated startle response	D. Persistent symptoms of increased arousal: at least two symptoms e.g. difficulty falling or staying asleep, irritability, difficulty concentrating, hypervigilance, exaggerated startle response
F. Clinically significant distress/impairment	F. Clinically significant distress/impairment.
G. Duration between two days and four weeks and occur within one month of the trauma.	E. Duration more than one month.
H. Not better accounted for by something else e.g. substance abuse, general medical condition, brief psychotic disorder, exacerbation of pre-existing Axis I or II disorder.	N/A

Likely changes for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) may address some of the current difficulties regarding developmental insensitivity of diagnostic categories (Bryant, et al., 2011; Scheeringa, et al., 2011). For example, a current ASD diagnosis requires that a given number of symptoms across a number of categories must be present to warrant diagnosis (APA, 1994; APA, 2000) (see Table 1). However, evidence to date suggests that fewer symptoms from any cluster may be more useful in detecting those with ASD (Bryant, et al., 2011), especially in children (e.g. Kassam-Adams, et al., 2012). Additionally, in children and adolescents there seems to be no added value of the dissociation criterion in ASD, hence, this criteria may be excluded from DSM-5 (Bryant, et al., 2011; Meiser-Stedman, et al., 2007a). Indeed, a relatively recent study found that in a sample of 93 children and adolescent assault and motor vehicle accident victims the ‘early PTSD’ diagnosis captured all individuals with who received an ASD diagnosis (Mesier-Stedman, et al., 2007a). With regard to PTSD, Scheeringa and colleagues (2011) suggest a number of adaptations for DSM-5 to assist more accurate diagnosis in school aged children and adolescents. These include: dropping criterion A2 (response to trauma involving intense fear, helplessness or horror) or broadening it to include other emotional responses; introducing an additional symptom cluster to include symptoms such as maladaptive cognitions and persistent negative emotional states; and, as for ASD, to reduce the symptom threshold in some clusters (Scheeringa, et al., 2011).

The current study will attempt to account for the broad spectrum of early responses to trauma exposure in a number of ways. Firstly, a diagnostic interview, the child version of the Anxiety Disorders Interview Schedule for DSM-IV, (ADIS-C), (Silverman & Albano, 1996) with supplementary dissociative questions, will be administered to determine whether children meet current DSM-IV diagnostic criteria for ASD. Secondly, we will use a measure of PTSD symptom severity, the Child PTSD Symptom Scale (CPSS) scores, (Foa, Johnson, Feeny, & Treadwell, 2001), to assess early PTSD symptoms. Thirdly, we will measure the severity of symptoms of depression in our sample using parent and child report versions of the Mood and Feelings Questionnaire (MFQ-P and MFQ-C, Costello & Angold, 1988).

2.2.3 Prevalence rates of early reactions to traumatic events in children

There is considerable inter-individual variability in response to trauma exposure. In a recent review of data for a total of 1 645 children (aged five to 17 years old), Kassam-Adams and colleagues (2012) analysed symptoms indicative of posttraumatic stress reactions occurring within one month post-trauma. They found that each of 14 ASD symptoms was endorsed by between 14% and 51% of individuals. In this study, 41.4% were significantly impaired by their symptoms. This study did not report overall ASD rates (Kassam-Adams, et al., 2012). Meiser-Stedman and colleagues (2005) found 19.4% of a sample of 93 adolescent emergency department attendees met diagnostic criteria for ASD within four weeks post trauma and 24.7% met criteria for 'early PTSD'. Rates were higher when specific symptoms were explored (e.g. 80.6% of the sample reported symptoms of arousal) and 38.7% reported being significantly impaired by their symptoms (Meiser-Stedman, et al., 2005). Some studies have found much lower rates of individuals meeting full ASD diagnostic criteria. For example, Kassam-Adams and Winston (2004) found 8% of a sample of 243 children (8 to 17 years old) had ASD within one month of experiencing a road traffic accident. The prevalence of depressive symptoms following trauma have been less extensively researched than ASD and early PTSD symptoms. Initial estimates suggest prevalence rates of depressive symptoms soon after traumatic events vary between 11 and 41% (Han, et al., 2011; Zatzick et al., 2006). Using diagnostic categories rather than symptom severity may yield slightly lower prevalence rates. For example, Ellis, Nixon and Williamson (2009) found 7% of their sample of 97 children aged between seven and 17 years scored above clinical cut-off on a measure of depression within four weeks of entering an emergency department following a traumatic event.

It is important to understand this variability in response to trauma exposure and the predictors of acute stress reactions among exposed samples because 1. Acute stress reactions are robust predictors of chronic PTSD; and 2. Knowledge of factors affecting early stress reactions can help to develop treatments for these responses. Predictors of acute stress reactions are described in more detail in the following two sections. In a recent meta-analysis of 64 studies, Trickey and colleagues investigated 25 risk factors for posttraumatic stress disorder in 32 238 children (six to 18 years old) (Trickey, Siddaway, Meiser-Stedman, Serpell, & Field,

2012). They found small effect sizes for pre-traumatic factors and more objective measures (e.g. age, gender, and trauma severity). In contrast, they found medium to large effect sizes for peri- and posttraumatic variables (e.g. peri-trauma fear, perceived life threat, acute PTSD symptoms and thought suppression) (Trickey, et al., 2012).

2.2.4 Section Summary

In summary, traumatic events are common in childhood and a number of different early stress reactions may be experienced following such incidents. Symptoms are heterogeneous among individuals and may also present differently at different stages of development. Current diagnostic categories appear to be inadequately adapted for use in children and adolescents. The current study will therefore measure posttraumatic stress reactions in a number of ways, including an ASD diagnostic interview schedule and symptom severity measures of early PTSD and depression. Early posttraumatic stress reactions are predictive of long-term symptoms which may be distressing and disabling for a significant minority of children and young people. There is some evidence that early psychological interventions in children and adolescents after traumatic events may be helpful (Kramer & Landolt, 2011). For example, Berkowitz, Stover and Marans (2011) recently demonstrated that children (aged seven to 17 years) provided with a four-session caregiver-child intervention within 30 days of exposure to a potentially traumatic event had significantly lower posttraumatic and anxiety scores at three month follow-up than those in a four-session supportive comparison group. It is therefore important to understand those factors which may influence acute stress reactions in order that effective interventions may be developed.

2.3 A cognitive model of posttraumatic stress symptomatology

A number of theoretical frameworks to explain the formation and maintenance of posttraumatic stress reactions have been proposed (e.g. Brewin, Dalgleish, & Joseph, 1996; Foa & Rothbaum, 1998; Janoff-Bulman, 1992; Keane, Zimering, & Caddell, 1985) (see Brewin & Holmes, 2003, for a review). Drawing on prior research, Ehlers and Clark (2000) published a comprehensive cognitive model of PTSD. It is beyond the scope of the current study to describe all models of posttraumatic stress symptomatology here in detail. Instead, the Ehlers and Clark

(2000) model is now described in more depth as this is the most widely researched and empirically validated theory to be tested in children and adolescents to-date.

2.3.1 Overview of the Ehlers and Clark (2000) model

The model hypothesises that posttraumatic stress reactions persist when two key processes; 1) an individual's appraisals of the trauma and/or its sequelae, and 2) disturbances in autobiographical memory, lead to a sense of *current threat* (Ehlers & Clark, 2000). In addition, these processes have a reciprocal relationship with the use of unhelpful coping strategies (e.g. avoidance of talking/thinking about the trauma, rumination, and thought suppression) which maintain symptoms. The model also acknowledges the role of pre-traumatic experiences and beliefs (Ehlers & Clark, 2000) (see Figure 1).

Appraisals

Ehlers and Clark (2000) suggest that negative appraisals about oneself (e.g. 'I am bad'), others (e.g. 'people can't be trusted') or the world (e.g. 'the world is a dangerous place'), during and/or following a traumatic event, may contribute to a sense of *current threat* and hence maintain symptoms. This may occur through situational fear or by leading to unhelpful coping strategies, preventing the discovery of new evidence which could shift these appraisals. When negative appraisals relate to avoidance of trauma memories (e.g. 'thinking about what happened will make me go mad'; 'bad things will happen if I visit the accident site'), elaboration of memories may be prevented, and may disrupt integration into the autobiographical knowledge base (described below). The authors also note that negative appraisals are typically associated with negative emotions such as fear, anger and depression (Ehlers & Clark, 2000).

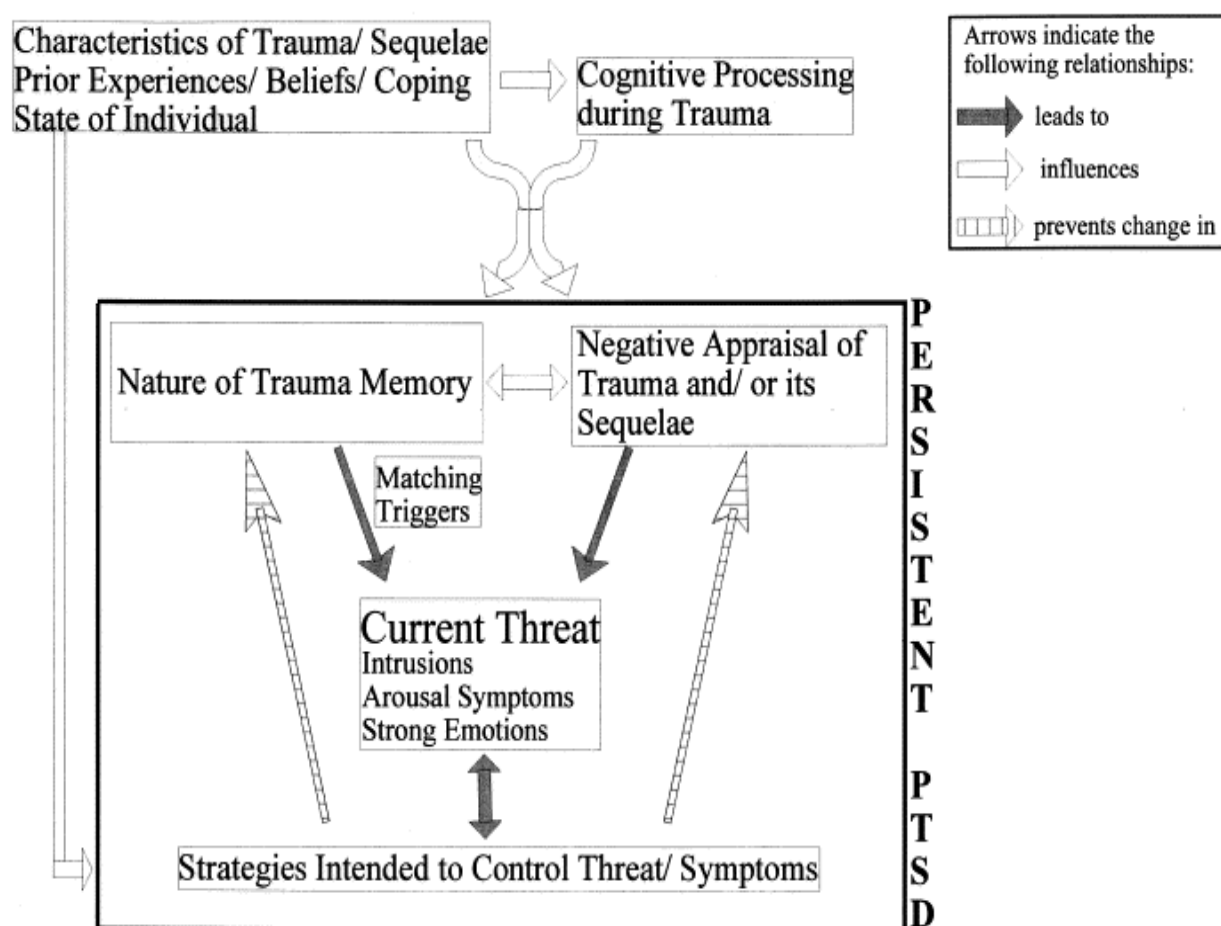
Maladaptive coping strategies

The model examines the role of unhelpful behavioural strategies and cognitive processing styles that individuals may perform in an attempt to control symptoms, but, in so doing, paradoxically maintain or increase these symptoms. As described above, these strategies may prevent change in the trauma memory and/or negative appraisals, and may directly cause PTSD symptoms. Behavioural coping strategies might include hypervigilance, and 'safety behaviours', (e.g. someone who was

attacked carrying a knife with them). Cognitive strategies include ‘thought suppression’ (trying to push unwanted thoughts out of our minds but in so doing increasing their frequency) and ‘trying not to think about the event’ (thus preventing elaboration of the trauma memory) (Ehlers & Clark, 2000).

Additionally, rumination is implicated as an unhelpful coping style in the model. At the time of writing, it was suggested that it may serve to strengthen negative appraisals, prevent elaboration of the trauma memory, and directly produce negative affect via internal retrieval cues (Ehlers & Clark, 2000).

Figure 1. A cognitive model of PTSD (from Ehlers & Clark, 2000)



Memory

An important aspect of the model links the observations that whilst typically unable to intentionally recall coherent, non-fragmented memories of the trauma, individuals with PTSD frequently experience involuntary intrusive memories of the event (Ehlers & Clark, 2000). It is thought that these characteristics may be due in part to the

encoding of memories in a data-driven (involving processing of primarily sensory information) rather than conceptual way (involving processing of meaning) during the traumatic event. As these memories are primarily sensory, and lack semantic information (e.g. their context in place and time), they may be poorly integrated into the autobiographical knowledge base, and more likely to be accessed via 'direct' rather than 'generative' retrieval processes (c.f. Conway & Pleydell-Pearce, 2000, described below).

Autobiographical memories also relate to an individual's sense of self (Conway & Pleydell-Pearce, 2000; Williams & Conway, 2009). It is suggested by Ehlers & Clark that when a traumatic event threatens an individual's view of themselves, it may lead to disruption of the autobiographical knowledge base such that memories are more cue-driven than filtered by the current context, making the occurrence of intrusive memories more likely (Conway & Pleydell-Pearce, 2000; Ehlers & Clark, 2000).

The model also asserts that associative learning and 'perceptual priming' (an implicit form of memory) is likely to be strong during frightening events, meaning that trauma-related stimuli are more likely than other stimuli to trigger trauma-related memories and/or emotions. Furthermore, trauma-related cues are more likely to be noticed, even if only vaguely similar to those present during the traumatic event, and even when observed in very different contexts (Ehlers & Clark, 2000).

Other factors

Objective trauma characteristics (e.g. severity and duration of event) in addition to pre-traumatic experiences and beliefs (e.g. previous trauma exposure, the belief that the world is a safe place) and individual factors (e.g. intelligence, alcohol consumption at time of trauma) are considered important, although not necessary or sufficient, in the maintenance of PTSD. The model describes their potential influences on peri-traumatic cognitive processing, the nature of the trauma memory, and individuals' appraisals and coping strategies (Ehlers & Clark, 2000).

2.3.2 Evidence for a cognitive model of posttraumatic stress symptomatology in children

A number of studies have found evidence to support the Ehlers and Clark (2000) model in adults (e.g. Lancaster, Rodriguez, & Weston, 2011; Ozer, Best, Lipsey, & Weiss, 2003), and there is evidence that treatments targeting the cognitive mechanisms identified in the model can provide effective interventions for adults with PTSD (Follete & Ruzek, 2006; Shipherd, Street & Resick, 2006). Less is known about the applicability of the model in children and adolescents (Meiser-Stedman, 2002; Polusny, et al., 2011). The evidence to date, with particular emphasis on research investigating early responses to trauma, is now reviewed.

Appraisals

The role of maladaptive appraisals as implicated by Ehlers & Clark's (2000) model has been well established in children and adolescents (e.g. Bryant, Salmon, Sinclair, & Davidson, 2007; Ehlers, Mayou, & Bryant, 2003; Ellis, et al., 2009; Leeson, & Nixon, 2011; Salmon, Sinclair, & Bryant, 2007; Salmond, et al., 2011; Stallard, 2003). For example, Ellis and colleagues (2009) found negative appraisals following trauma were related to ASD and depression in children as young as seven. Furthermore, negative appraisals (e.g. of personal vulnerability, the meaning of anxiety symptoms, or the threat of future harm) shortly after traumatic events have been found to independently predict PTSD at six-month follow-up (e.g. Ehlers, et al., 2003).

Maladaptive coping strategies

In line with the adult research, unhelpful cognitive and behavioural strategies in children appear to maintain posttraumatic stress symptomatology (e.g. Trickey, et al., 2012). For example, behavioural coping strategies such as not discussing the event have been found important (e.g. Stallard, Velleman, Langsford & Baldwin, 2001). Additionally, cognitive coping strategies such as thought suppression (e.g. Aaron, Zaglul, & Emery, 1999), and the endorsement of worry as an adaptive coping mechanism in response to distressing emotions are significantly associated with early posttraumatic stress reactions in trauma exposed children and adolescents (Meiser-Stedman, Dalgleish, Glucksman, Yule, & Smith, 2009; Meiser-Stedman, et al., 2007a).

A number of studies in adults have found rumination to be an important predictor of symptom severity, PTSD and depression following traumatic events (Ehring, Frank, & Ehlers, 2008; Nolen-Hoeksema & Morrow, 1991; Steil & Ehlers, 2000). A growing body of research also implicates rumination is important in relation to children's early responses to traumatic events (Ehlers, et al., 2003; Meiser-Stedman, et al., 2007a). For example, levels of rumination at two weeks post-trauma have been found to predict PTSD symptom severity three and six months later (Ehlers, et al., 2003).

Memory

There is growing evidence that the nature of children's trauma memories shortly after traumatic events may be important in predicting posttraumatic stress reactions (e.g. Meiser-Stedman, et al., 2007a; Salmond, et al., 2011). For example disorganised trauma narratives (Salmond, 2008) and trauma memories with more sensory features (Meiser-Stedman, et al., 2007) assessed within the first month post-trauma have been found to predict PTSD in children. However, in comparison to the adult literature, there is a relative dearth of research into the nature of autobiographical memories in trauma-exposed children.

Other factors

In line with predictions from the Ehlers and Clark's (2000) model, research has found a number of trauma characteristics and pre-trauma experiences and beliefs to influence posttraumatic stress reactions in children as well as adults. For example, objective trauma characteristics, such as trauma severity and injuries sustained have been found to associate with early responses to trauma (Salmond, et al., 2011; Winston, Baxt, Kassam-Adams, Elliott, & Kallan, 2005).

Since the publication of Ehlers and Clark's model, potential differences between the formation and maintenance of posttraumatic stress reactions in children and adults have been more widely investigated (e.g. Salmon & Bryant, 2002; Meiser-Stedman, 2002). For example, family factors such as parental reactions (e.g. Daviss et al., 2000; Polusny, et al., 2011), parental mental health difficulties (e.g. Kilic, Ozguven, & Sayil, 2003; McFarlane, 1987; Smith, Perrin, Yule, & Rabe-hesketh, 2001), and family functioning (Meiser-Stedman, 2002) soon after traumatic events appear to be important in predicting the outcome of symptoms in children. Trickey and colleagues

(2012) analysed 25 studies exploring the relationship between parental psychological problems (anxiety, depression, and PTSD) and children's posttraumatic stress reactions. They found small to medium effect sizes for pre- and post-trauma parental mental health difficulties (Trickey et al., 2012). Fewer studies investigate the relationship between poor family functioning and children's symptoms. However, findings to date suggest it may be a stronger risk factor for children's posttraumatic stress symptoms than parental mental health difficulties (Trickey et al., 2012). Hence, family functioning seems to be important, but needs further investigation.

2.3.3 Predictors of depression post-trauma

There is a small but growing body of research investigating predictors of posttraumatic depression. For example, in adults, evidence suggests that cognitive variables such as rumination and misappraisals following trauma predict both PTSD and depression (e.g. Ehling, Ehlers & Glucksman, 2006; Ehling, Frank & Ehlers, 2008; Kleim, Ehlers, & Glucksman, 2012). Recent evidence suggests that whilst there is some overlap in maintaining cognitive factors in PTSD and posttraumatic depression, there is also some specificity (Kleim, et al., 2012). For example, self-devaluation and hopelessness at two weeks post-trauma have been found to better predict depression at six months than PTSD. In contrast, rumination, thought suppression, and persistent dissociation in response to trauma memories better predict PTSD (Kleim, et al., 2012). Few studies specifically investigate predictors of posttraumatic depression in children and adolescents. However, there is some evidence that rumination following traumatic events predicts posttraumatic depression in addition to posttraumatic stress symptoms in children and young people (e.g. Felton, Cole, & Martin, 2013; Nolen-Hoeksema & Morrow, 1991).

2.3.4 Section summary

In summary, studies investigating the formation and maintenance of posttraumatic stress symptomatology in children are sparse compared with those in adults. Those which do indicate that cognitive factors implicated in adult models may also be relevant in relation to children's early responses to trauma. Furthermore, there is some evidence that maladaptive thinking styles present shortly after traumatic events may be predictive of longer-term outcomes in children. The current study will

therefore measure potential predictors (appraisals, avoidance, rumination and parental symptoms) with a view to replicating and extending previous findings. Additionally, the role of overgeneral autobiographical memory in relation to trauma-exposed children and adolescents has received very little attention in the literature; hence this will be further explored, and is reviewed next.

2.4 Autobiographical memory and trauma

2.4.1 General overview

Since the publication of the Ehlers and Clark (2000) model, the nature of autobiographical memories in posttraumatic stress reactions has been more widely explored. In particular, the ‘overgeneral autobiographical memory’ (OGM) phenomenon is an emerging topic of interest in the field (Moore & Zoellner, 2007; Sumner, 2012; Williams et al., 2007). ‘Autobiographical memories’ refer to the facet of memory involving the recollection of past events personally experienced by an individual (Williams, et al., 2007). OGM, describes the tendency for individuals to recall their past in an overgeneral (versus specific) way (Williams & Broadbent, 1986).

Originally a chance finding, over the past twenty-five years, the OGM phenomenon has been found to have important implications for psychological functioning. OGM was first noted by Williams and Broadbent (1986) when they observed that suicidal patients were less likely than controls to respond to cue words with a specific autobiographical memory when requested to do so. A number of subsequent studies in different clinical groups (e.g. Burke & Mathews, 1992; Dalgleish, et al., 2003; Henderson, Hargreaves, Gregory, & Williams, 2002; Kaney, Bowen-Jones, & Bentall, 1999; Wenzel, Jackson, Brendle, & Pinna, 2003) indicate that OGM is predominantly characteristic of depressive disorders (Raes, et al., 2006; Sumner, et al., 2011; Williams & Broadbent, 1986) and trauma (e.g. Harvey, Bryant, & Dang, 1998; Kleim & Ehlers, 2008; McNally, Litz, Prassas, Lisa, & Weathers, 1994) (see Williams, et al., 2007 for a review).

Overgeneral autobiographical memory and depression in adults

OGM has consistently been found to associate with major depressive disorder, and other affective disorders such as dysphoria and postnatal depression (see Williams, et al., 2007 for a review). Some studies have found that greater OGM can be used successfully to predict affective changes in both clinically depressed (e.g. Brittlebank, Scott, Williams, & Ferrier, 1993) and non-clinical samples (Mackinger, Loschin, & Leibetseder, 2000). In general it appears that in depressed individuals, positive cue words elicit more overgeneral memories than negative cue words (Williams, et al., 2007), although this has not always been found (e.g. Mansell & Lam, 2004).

Overgeneral autobiographical memory and trauma in adults

Although the majority of studies of OGM relate to depression, a growing body of research is beginning to explore the relationship between OGM and traumatic events (Moore & Zoellner, 2007). Most studies in adults find an association between OGM and recent trauma (e.g. Harvey, et al., 1998; Kleim & Ehlers, 2008; McNally, et al., 1994). Similarly, the majority report that early trauma is associated with greater OGM (e.g. Burnside, Startup, Byatt, Rollinson, & Hill, 2004; Dalgleish, et al., 2003), including when levels of depression are controlled for (e.g. Henderson, et al., 2002). However, some researchers have found the inverse relationship (e.g. Wilhelm, McNally, Baer, & Florin, 1997) a relationship for men but not women (e.g. Schlachter, Weiner, & Nash, 2009) or no relationship at all (e.g. Kremers, Spinhoven, & Does, 2004; Wessel, Meeren, Peeters, Arntz, & Merckelbach, 2001).

Inconsistencies in trauma-related findings may be due to a number of factors. Importantly, it is likely that trauma exposure is not the primary mechanism leading to overgenerality, but rather, underlying cognitive factors which differentiate those with and without OGM (Bunnell & Greenhoot, 2012; Kuyken, Howell, & Dalgleish, 2006; Moore & Zoellner, 2007; Williams, et al., 2007). Furthermore, methodological issues such as low levels of trauma (Williams, et al., 2007) and the validity of measures (Kremers, et al., 2004) are likely to have influenced results in some studies (Williams, et al., 2007).

Assessing overgeneral memory

A number of different methodologies may be employed to assess OGM (Griffith, et al., 2012a). To date, the most widely used and validated measure is individuals' performance on the Autobiographical Memory Test (AMT) (Williams & Broadbent, 1986). The AMT requires participants to generate a specific memory in response to a given cue word (Williams & Broadbent, 1986). It is usual for studies to use a combination of positively and negatively valenced cue words, however differences in words used and other aspects of the methodology are common and may make comparison across studies difficult (Griffith, et al., 2012a; Sumner, 2012). Despite these limitations, findings of OGM in those with depression and dysphoria are relatively robust across the adult literature, even when differences in IQ are accounted for (Sumner, 2012; Williams, et al., 2007).

Why study overgeneral memory?

The rationale for investigating OGM in trauma comes from findings that it has a role in aspects of psychological functioning (Williams, et al., 2007). OGM appears to delay recovery from episodes of affective disorders, may be a 'marker' for future vulnerability to depression (e.g. Brittlebank et al., 1993; Gibbs & Rude, 2004; Mackinger, et al., 2006; Raes et al., 2006), and is associated with increases in symptoms of depression following stress (Van Minnen, Wessel, Verhaak, & Smeenk, 2005). Furthermore, OGM has been linked to poor social problem-solving ability (e.g. Evans, Williams, O'Loughlin, & Howells, 1992; Goddard, Dritschel, & Burton, 1996) and difficulties in imagining future events (Williams et al., 1996). OGM may be modified (McBride, Segal, Kennedy, & Gemar, 2007; Watkins, Teasdale, & Williams, 2000). Reductions in depression and hopelessness have been found following interventions aimed at increasing memory specificity (Raes, Williams, & Hermans, 2009; Serrano, Latorre, Gatz & Montanes, 2004). Hence, there are clinical implications for understanding factors which contribute to OGM (Sumner, 2012; Williams et al., 2007).

Summary of overgeneral autobiographical memory in adults

In summary, since the initial observation of the OGM phenomenon, a growing body of research has found it to be a well established feature of depression and trauma-related psychopathology (Sumner, 2012). These findings appear relatively robust

despite large variations in methodologies used to measure the phenomenon. Research suggests a number of clinically relevant implications of OGM, including its link to delayed recovery from affective disorders, and that interventions targeting memory specificity show some promise in improving clinical outcomes.

2.4.2 Overgeneral autobiographical memory in children

Despite its relevance and potential for clinical interventions, research has predominantly investigated OGM in adult populations and studies of children and adolescents are sparse. Evidence from the research to date is now reviewed.

Overgeneral memory and depression in children

In line with findings in adults, there appears to be a relationship between OGM and depression in children and adolescents, although OGM may be a less stable predictor of depression in adolescents compared to adults (Park, Goodyer, & Teasdale, 2005). Studies to-date have found OGM in young people to be associated with current depression, risk of depression and low mood (e.g. Heron, et al., 2013; Kuyken & Dalgleish, 2011; Kuyken, et al., 2006; Sumner, Griffith, & Mineka, 2011; Valentino, Toth, & Cicchetti, 2009; Vrielynck, Deplus, & Philippot, 2007). For example, a recent 16-month longitudinal study conducted by Sumner and colleagues (2011) found that OGM in interaction with chronic interpersonal stress predicted the course of depression in adolescents (Sumner, et al., 2011). In a recent large scale study of 5 792 adolescents (95% were 13 years old), Heron and colleagues (2013) found that those with low mood (as measured with the MFQ 13-item short-form, Angold, et al., 1995) were more likely to have overgeneral memories.

Overgeneral memory and trauma in children

The relationship between OGM and trauma in children and adolescents is less clear. While some studies find decreased autobiographical memory specificity in individuals with trauma histories (e.g. De Decker, Hermans, Raes, & Eelen, 2003; Stokes, Dritschel, & Bekerian, 2004) including sexual and physical abuse (e.g. Johnson, Greenhoot, Glisky, & McCloskey, 2005; Valentino, et al., 2009), others find the inverse (e.g. Kuyken, et al., 2006). For example, Kuyken and colleagues (2006) found that depressed adolescents who reported a history of trauma retrieved *more* specific memories than depressed adolescents with no trauma history. This

may be due to an interaction between a history of childhood abuse and depressive symptoms in predicting OGM in children and adolescents: Valentino and colleagues (2012) found that those with high levels of depressive symptoms and no history of abuse had more OGM than highly depressed children with an abuse history, but the converse pattern for those with low levels of depression (Valentino, Bridgett, Hayden, & Nuttall, 2012).

Other influences on AMT task performance

Consistent with findings in adults, those with lower IQ have been found to retrieve more overgeneral memories than those with higher IQ in response to AMT words (Heron, et al., 2013). There is also some evidence of an age effect on OGM, with older children generating more specific memories than younger children (e.g. Drummond, Dritschel, Astell, O'Carroll, & Dalgleish, 2006; Valentino et al., 2009). Although not often the focus of research, Heron and colleagues (2013) also found some evidence of a gender effect on AMT performance. However, it should be noted that ability level, age, and gender have not always been found to correlate with AMT scores (e.g. Drummond et al., 2006; Raes, Verstraeten, Bijttebier, Vasey & Dalgleish, 2010).

Summary of overgeneral autobiographical memory in children

In summary, there is a small but growing number of studies demonstrating a relationship between OGM, and trauma and depression in children and young people. Although many find a relationship between memory specificity and psychopathology, findings to-date are somewhat mixed. OGM may be a less robust predictor of mental health difficulties, such as persistent depression, in younger individuals (Park, et al., 2005). Furthermore, some studies find age-related differences in performance. These may in part reflect developmental differences in memory and cognition relevant to performance on the AMT task (Drummond, et al., 2006; Valentino, 2011).

2.4.3 Models of overgeneral autobiographical memory

A number of explanatory models have been proposed in an attempt to shed light on the OGM phenomenon (e.g. Conway & Pleydell-Pearce, 2000; Valentino, 2011; Williams, et al., 2007). Building on the 'Self-Memory System' (SMS) framework of

Conway and Pleydell-Pearce (2000), Williams and colleagues presented the cognitive ‘Capture and Rumination, Functional Avoidance, and Executive control’ (CaR-FA-X) model of overgeneral autobiographical memory (Williams, et al., 2007). These two models are now briefly described.

The Self-Memory System (Conway & Pleydell-Pearce, 2000)

Conway and Pleydell-Pearce’s Self-Memory System (SMS) is a conceptual framework encompassing two main components; ‘the working self’, and ‘autobiographical memory knowledge base’ (Conway, 2005; Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004). The role of the ‘working self’ is to initiate and monitor current goal-directed activity, and control the storage and retrieval of autobiographical memories from the autobiographical memory knowledge base. The knowledge base is described as a complex hierarchical system organised according to the specificity of memories. At the most general level, ‘lifetime periods’ (e.g. ‘when I was 6’), then ‘general events’ (e.g. ‘holiday in z’) and, at the most specific level, ‘event-specific knowledge’ (ESK) (e.g. ‘the party with my friends the day I got my A-level results’) (Conway & Pleydell-Pearce, 2000). Earlier stages use more conceptual processing, whilst ESK consists of more concrete, sensory-perceptual information (Conway & Pleydell-Pearce, 2000; Williams, et al., 2007).

The model describes two potential retrieval processes: ‘Direct Retrieval’, and ‘Generative Retrieval’ (Conway & Pleydell-Pearce, 2000). ‘Direct Retrieval’ occurs when ESK is directly activated by internal or environmental cues (Burgess & Shallice, 1996; Conway & Pleydell-Pearce, 2000; Williams, et al., 2007). In contrast, ‘Generative Retrieval’ refers to a top-down, effortful retrieval process, whereby individuals search through the memory hierarchy in order to obtain a specific memory relevant for a task demand (Burgess & Shallice, 1996; Conway & Pleydell-Pearce, 2000). Conway and Pleydell-Pearce hypothesise that, in those with OGM, memories are recalled at the general rather than specific level in order to reduce the potential impact of negative affect elicited by perceptual fragments of aversive events, such as those associated with traumatic experiences (Conway & Pleydell-Pearce, 2000). This process, termed ‘dysfacilitation’, occurs during generative retrieval, when the memory search aborts at the general level, before ESK is reached (Conway & Pleydell-Pearce, 2000).

As described, the concepts of ‘direct’ and ‘generative’ retrieval are compatible with Ehlers and Clark’s (2000) cognitive model of PTSD. Unintentional trauma-related intrusions such as flashbacks, intrusive thoughts and intrusive images would result from direct retrieval, causing distressing affect. In contrast, intentionally recalled memories are more general, and individuals with posttraumatic stress symptomatology often cannot or do not willingly recall specific details of the event.

The capture and rumination, functional avoidance, and impaired executive control (CaR-FA-X) model (Williams et al., 2007).

The CaR-FA-X model extends previous models in an attempt to account for findings of OGM in the absence of traumatic events. In addition to the avoidance of aversive experiences, Williams and colleagues (2007) proposed that OGM may occur as a result of additional processes which may act alone or in combination (Williams, et al., 2007). Firstly, during generative retrieval, those with highly activated negative self schemas (e.g. individuals with depression) are ‘captured’ at the general stage by self-representations. They are likely to ruminate at this level rather than progress to more specific levels of the memory hierarchy, hence, the search is disrupted. Secondly, ‘functional avoidance’ may occur as a means of affect regulation (c.f. Conway & Pleydell-Pearce, 2000; Williams, 1996). Finally, the authors note that executive control is necessary for successful retrieval of specific memories (e.g. in inhibiting irrelevant memories and maintaining goal-directedness). Hence, impaired executive functioning is likely to impair performance on the AMT (Williams et al., 2007).

There is growing evidence that rumination, impaired executive control, and cognitive avoidance associate with OGM, although less evidence with regard to the ‘capture’ aspect of the model (see Sumner, 2012 for a review). Furthermore, it appears that the contributions of different aspects of the model to OGM may differ for different disorders (e.g. Dalgleish, et al., 2007; Dalgleish, Rolfe, Golden, Dunn, & Barnard, 2008). Few studies have tested CaR-FA-X predictions in children, and findings have been mixed (Sumner et al., 2012).

2.4.4 Section Summary

Thus, the relationship between OGM and trauma is relevant to theoretical models which attempt to shed light on the maintenance factors for distressing posttraumatic stress reactions such as PTSD and depression. Despite growing support for the CaR-FA-X model in adults, there have been few studies in younger populations, and findings to date are mixed. By using the AMT to measure OGM in trauma-exposed children and adolescents, the current study seeks to generate novel findings in the field.

2.5 The Current Study

The current study seeks to further our understanding of autobiographical memories in children exposed to trauma. This will add to a growing body of theoretically-driven research attempting to elucidate differences between those who develop posttraumatic stress symptomatology and those who do not. In so doing, it is hoped that potential maintenance factors may be found which may be targeted in future interventions.

2.5.1 Aims of the current study

1. To report on the proportions of trauma-exposed young people meeting the criteria for ASD between two and six weeks post-trauma, expecting to replicate previous findings on incidence.
2. To measure established statistical predictors¹ of posttraumatic stress reactions: rumination, avoidance, appraisals and parental anxiety and depression, expecting to replicate previous findings in the current sample.
3. To explore the relationship between overgeneral autobiographical memory (as measured by the AMT) and ASD; and depression.
4. To test whether OGM statistically predicts rates of ASD and depression in the current sample above and beyond established predictors of these disorders.

¹ **Note.** The term 'statistical predictor' is used throughout the remaining text. This is to emphasise that the study is cross-sectional in nature; therefore assertions regarding the causal relationship of variables cannot be made.

2.5.2 Research hypotheses

1. The proportions of young people meeting the criterion for ASD will be similar to rates found in previous studies.
2. There will be a relationship between established statistical predictors of posttraumatic stress reactions and ASD and early PTSD in the current sample.
3. There will be a positive correlation between Overgeneral Autobiographical memory and depression; and posttraumatic stress symptomatology.
4. OGM will statistically predict depression and posttraumatic stress symptom severity in our sample over and above established statistical predictors of posttraumatic stress disorders.

3. Materials and Methods

3.1 Design

The current study used a cross-sectional design in a population of trauma-exposed children and adolescent Emergency Department attendees and their parents. The outcome variables were: 1) ASD diagnosis according to the ADIS-C, 2) early posttraumatic stress symptom severity according to Child Posttraumatic Symptoms Scale (CPSS), 3) children's depression severity according to Mood and Feelings Questionnaire (MFQ). Our statistical predictor variables were 1) the degree to which individuals ruminate, 2) the nature of children's posttraumatic appraisals, 3) the amount of posttraumatic avoidance symptoms reported by children, 4) parental levels of mood and anxiety 5) pre-existing emotional and behavioural difficulties 6) the number of specific memories children recalled in the Autobiographical Memory Test.

3.2 Ethical Approval

The study was approved by the Health Research Authority, National Research Ethics (NRES) Committee London, City Road and Hampstead, reference 11/LO/2044 on 11th April 2012. It was also approved by King's College Hospital, Research and Development Department; reference KCH12-076 on 17th July 2012 (see Appendices A-F for copies of approval documents and participant information sheets).

3.3 Power Analysis and Recruitment Feasibility

A previous study of 203 adult assault victims (Kleim & Ehlers, 2008) showed a significant main effect of OGM on diagnosis. Those with ASD ($F(1, 201) = 3.98, p = .047, \eta_p^2 = .019$) and major depression ($F(1, 201) = 6.08, p = .014, \eta_p^2 = .029$) generated significantly fewer specific memories than those without at two weeks post-trauma. De Decker and colleagues (2003) found a main effect size for OGM on self-reported trauma in adolescent in-patients with emotional disorders of $d = 1.5$ in a sample of 28 inpatient adolescents, equivalent to $r = 0.6$ (see Williams, et al., 2007, for a summary of the results of other studies). A power analysis was conducted using 'nQuery Advisor'. The main hypothesis, that there will be a significant correlation between AMT and symptoms of ASD, would require a study with $N=35$ participants to have 85% power ($\alpha = .05$) to detect a significant correlation of $r = 0.5$

(vs. $r = 0$) between AMT and symptoms of ASD. To increase power, we aimed to recruit $N=50$ young people. A sample size of 50 would allow us to detect $r > 0.5$ with 80% power ($\alpha = .05$).

3.4 Participants

Participants were identified during a weekly ‘Child Review Meeting’ at Kings College Hospital Emergency Department (ED) by the care team. This meeting does not review all young people who enter the ED, but those who fall under one or more of the following categories; ‘assault’, ‘high risk’, ‘not on any report’, ‘burns’ and ‘resus’. ‘High risk’ includes children who have known social services involvement, or are a hospital ‘special case’ (for example due to having multiple admissions resulting from a chronic life-threatening condition); ‘not on any report’ cases refer to individuals where concerns have been raised by staff during their attendance (for example, where the mechanism of injury indicates neglect or maltreatment, or inappropriate behaviour is observed in the ED); ‘resus’ patients are those admitted to the Resuscitation Department (rather than the general paediatric area of the ED), hence, in general those with more severe illnesses and injuries.

We chose this recruitment method for two reasons: Firstly, all severe trauma cases involving admission to the immediate resuscitation room are discussed. We hoped that this would maximise the likelihood that traumatic events would meet DSM-IV-TR Criterion A (see Table 1). Secondly, each case is discussed in detail with social services, safeguarding and medical professionals present, and more information is available regarding cases than can be obtained from the hospital’s paper or electronic note systems. Hence, it was also considered a convenient, time-efficient way to minimise contact of unsuitable families (for example individuals with learning disabilities, those who were intoxicated at the time of the event, and those referred to intensive care) and to maximise the safety of the researcher.

3.4.1 Inclusion Criteria

Children and adolescents aged eight to 17 years who attended the ED following a trauma (as defined by the DSM-IV-TR (APA, 2000) (see Table 1) were invited to take part in the study.

3.4.2 Exclusion Criteria

Children under the age of eight were not included as many of the questionnaires were not developmentally appropriate or valid for use in young children (for example, using too complex language). Additionally, individuals with severe learning disability (determined by attendance at a special school), organic brain disorder, current psychotic symptoms, substance abuse, drugs and/or alcohol consumption at time of trauma, or an inability to speak English were excluded from the study. This was so as to insure individuals were able to complete all sections of the battery, and thus avoid some potential biases in results. Patients injured by a family member were also excluded as this may have compromised the researcher's safety during home visits.

3.5 Measures

3.5.1 Demographic and trauma variables

Potential objective predictors of trauma including age, gender, triage category, loss of consciousness, and mode of admission to hospital were collected from the ED. Further demographic information including: number of years in full-time education, history of previous mental health difficulties and number of previous traumas were collected during interviews with the participating families.

3.5.2 Parent Measures

Parents completed four questionnaires: our outcome variable was measured using the Mood and Feelings Questionnaire (MFQ-P) (Costello & Angold, 1988): a demographic background questionnaire; the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983); and the Strengths and Difficulties Questionnaire – Parent Version (SDQ-Parent) (Goodman, 1997) were used to measure statistical predictor variables.

Outcome Variables

Mood and Feelings Questionnaire – Parent Version (MFQ-P) (Costello & Angold, 1988)

This is a 34-item parent-rated questionnaire based on DSM-IV criteria for major depressive disorder. Respondents rate statements on a three-point scale as “true”, “sometimes true”, or “not true” (Costello & Angold, 1988). A score of above 21 is

generally used to indicate dysphoria, and 28/29 a major depressive episode; however symptom severity scores may also be used in analysis (Costello & Angold, 1988).

The MFQ-P has good test-retest reliability (intraclass correlation coefficients=0.8), (Daviss, et al., 2006). Inter-rater correlations between child and parent versions have been found to be high (Cohen's κ =0.51-0.61) (Kent, Vostanis, & Feehan, 1997; Wood, Kroll, Moore, & Harrington, 1995), although children tend to report more symptoms than their parents (Wood et al., 1995).

Parents completed the questionnaire to describe their child's mood and feelings over the last two weeks (i.e. subsequent to the trauma). Internal reliability in the current sample was Cronbach's $\alpha = .95$. MFQ-C and MFQ-P total scores correlated highly in our sample ($p < 0.01$)

Statistical Predictor Variables

Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983)

This is a 14-item self-report questionnaire assessing anxiety and depression. Participants are instructed to select one of four responses for each item to best describe how they have been feeling over the past week. Item scores range from zero to three (where three is most severe) on a four-point Likert Scale, and can be interpreted for anxiety or depression subscales (ranging from 0-21), or as a total score.

Research has found the measure to have good reliability and validity. In a review of 747 studies, Bjelland and colleagues (2002) found correlations between the two subscales to vary from .40 to .74 (mean Cronbach's α =.56). When clinical cut-off for the likely absence of anxiety and/or depression is defined as eight or below, most studies demonstrate good sensitivity and specificity (0.9 and 0.78 for anxiety respectively; and 0.83 and 0.79 for depression) (Bjelland, Dahl, Haug, Neckelmann, 2002). The likely presence of anxiety or depression is usually defined by a score greater than 11 (Bjelland et al., 2002).

Parents completed this in relation to their own mood over the last week. Internal reliability in the current study was Cronbach's $\alpha = .86$.

Strengths and Difficulties Questionnaire – Parent version (Goodman, 1997)

The SDQ is a 25-item questionnaire assessing emotional and behavioural functioning and relationships in children and adolescents (Goodman, 1997). It consists of five subscales: emotional, conduct, hyperactivity, peer problems and pro-social behaviour and is brief and easily administered (Goodman, 1997). For each item, parents choose one of three responses ('not true', 'somewhat true', or 'certainly true'), to describe their child's behaviour over the last six months or school year. Subtest may be used independently, and an overall 'total score' and estimation of the impact of difficulties on children's lives may be derived (Goodman, 1997).

The SDQ has been validated in a number of social contexts including school and clinical populations (Vostansis, 2006). These include younger children (e.g. Hawes & Dadds, 2004), and older adolescents (e.g. Van Roy, Veenstra & Clench-Aas, 2008). The parent-version has been found to reliably detect total difficulties (Cronbach's $\alpha = 0.82$), has good test-retest reliability (mean stability = 0.62) and good inter-rater correlations with teacher and youth scores (Goodman, 2001). In Western countries, research is lacking for refugee and ethnic minority populations: hence caution is needed when interpreting scores for this population (Vostanis, 2006).

Parents were asked to complete the SDQ retrospectively for their child prior to the traumatic event as an estimate of prior psychopathology. The internal consistency for SDQ scores in this sample was poor, Cronbach's $\alpha = .44$.

3.5.3 Child Measures

Outcome Variables

Child version of Anxiety Disorders Interview Schedule for DSM-IV (ADIS-C) (Silverman & Albano, 1996)

Children were interviewed using the PTSD section of the ADIS-C (Silverman & Albano, 1996) including supplementary dissociative questions (see Appendix G) to assess Acute Stress Disorder (see Meiser-Stedman, et al., 2007a). The ADIS-C is a structured interview schedule for deriving anxiety disorder symptoms and diagnoses in children (Silverman & Albano, 1996; Silverman, Saavedra, & Pina, 2001). Questions assess possible traumatic events an individual may have experienced, and the three symptom clusters: re-experiencing, avoidance, and hyperarousal. Answers may be scored as 'yes', 'no', or 'other'. To meet diagnostic criteria for ASD, the individual must have at least one symptom of re-experiencing, three of avoidance and two hyperarousal symptoms. In addition, the degree to which symptoms interfere with an individual's life functioning is measured on a scale of zero (no interference) to ten (significant interference) (Silverman & Albano, 1996).

The ADIS has good test-retest reliability for diagnosis (Cohen's $\kappa > 0.60$) (Silverman, Saavedra, & Pina, 2001). However, whilst prominently used in anxiety research in children and adolescents, few studies have determined the ADIS-C's reliability and validity for use in detecting ASD/PTSD specifically (Meiser-Stedman, et al., 2007a). In a sample of 93 10-16 year old victims of motor vehicle accidents, the ADIS was found to have good internal reliability (Cronbach's $\alpha = 0.85$) and inter-rater reliability (Cohen's $\kappa = 100$) for determining ASD diagnosis (Meiser-Stedman, et al., 2007a).

The ADIS-C was administered in order to ascertain whether or not children met diagnostic criteria for ASD. There was good internal consistency for ADIS-C and supplementary dissociation questions (Cronbach's $\alpha = .82$; Cronbach's $\alpha = .85$, respectively; Cronbach's $\alpha = .90$ when ADIS-C and supplementary items are combined).

The ADIS-C interviews were coded by the primary coder (HF). 28% of the interview recordings were blind-rated by a second coder (PS) to test inter-rater reliability. A

Kappa of 1.00 was achieved for both 'ASD' and 'early PTSD' ratings. Kappas in excess 0.7 indicate a high level of agreement between raters (Landis & Koch, 1977). It should be noted that consensus meetings were held, especially during the initial phases of testing, to double rate 8 “unsure” items on the ADIS-C interviews. It is likely that this will have improved the reliability of diagnostic coding.

Child PTSD Symptom Scale (CPSS) (Foa et al., 2001).

This is a 24-item self-report measure that assesses PTSD diagnostic criteria and symptom severity in children age eight to 18 years. The first 17 items indicate levels of interference for symptoms from each of the core symptom clusters of PTSD. They are rated on a five-point Likert scale: zero = ‘not at all or only at one time’: one = ‘once a week or less/once in a while’: two = two to four times a week/half the time: three = ‘five or more times a week/almost always’. Example items include: ‘Being jumpy or easily startled (for example, when someone walks up behind you)’ (arousal), ‘Trying not to think about, talk about, or have feelings about the event’ (avoidance), and ‘Having bad dreams or nightmares’ (re-experiencing). Scores total between zero and 51. In addition to the total score, arousal, avoidance and re-experiencing subtest scores may also be calculated (Foa, et al., 2001). The second part indicates the level of interference with functioning in seven domains (‘doing your prayers’, ‘chores and duties at home’, ‘relationships with friends’, ‘fun and hobby activities’, ‘school work’, ‘relationships with your family’, and ‘general happiness with your family’) a total score out of seven is calculated.

The CPSS has good internal consistency for both total and subscale scores (Cronbach’s α = .89 for total score, .80 for re-experiencing, .73 for avoidance, and .70 for arousal) (Foa, Johnson, Feeny, & Treadwell, 2010). Test-retest reliability of diagnosis has been found to be moderate (Cohen’s κ = .55), and of symptom severity moderate to high (Cohen’s κ = .85 for total score, .85 for re-experiencing, .63 for avoidance and .76 for arousal) (Foa, Johnson, Feeny, & Treadwell, 2010). It has good convergent validity with other self-report measures of PTSD symptoms (Ohan, Myers & Collett, 2002).

Children completed the CPSS to report on PTSD symptoms and level of interference over the last two weeks. Cronbach's $\alpha = .90$, suggesting items had relatively high internal consistency in the current sample.

Mood and Feelings Questionnaire – Child Version (MFQ-C) (Costello & Angold, 1988)

This is a 33-item self-report questionnaire based on DSM-IV criteria for major depressive disorder, designed for adolescents age eight to 18. It consists of statements to which responses are on a three-point scale (“true”, “sometimes true”, “not true”) (Costello & Angold, 1988). It is often administered in combination with the MFQ-P (*described above*). Example items include: ‘I hated myself’, ‘I ate more than usual’ and ‘I didn’t want to see my friends’.

The MFQ-C has good test-retest reliability (Intraclass Correlation Coefficients=0.78), and moderate diagnostic accuracy (Wood, et al., 1995). A cut-off of 21 is used to indicate dysphoria, and 28/29 as the threshold for adolescents with major depression, alternatively, symptom severity scores may be analysed (Daviss, et al., 2006).

Children completed the questionnaire to describe their mood and feelings over the past two weeks (i.e. subsequent to the trauma). Internal reliability for the MFQ-C was Cronbach's $\alpha = .94$.

Statistical Predictor Variables

Autobiographical Memory Test (AMT) (Williams & Broadbent, 1986)

The AMT is an adapted version of Robinson's (1976) memory retrieval task. It consists of ten emotional cue words (five positive and five negative) for which participants are requested to retrieve a specific autobiographical memory – something that happened to them at a specific time and place (Williams & Broadbent, 1986). There are a number of variations of the task using different instructions, cue words and timings.

The measure has good internal consistency (reliability coefficient = .72) (Griffith, Kleim, Sumner, & Ehlers, 2012b), and interrater agreement (e.g. from 92% to 99%

Cohen's $\kappa = .83-.96$; Raes, et al., 2009). However, there is some variance in validity and reliability (see Griffith, et al., 2012a), and there is currently limited evidence regarding its reliability and validity for use in children and adolescents.

The current version used words and instructions from Drummond and colleagues (2006) as they were found to be accessible for younger children (6-11 years). In their study, 95% agreement was found for memory content appropriateness for a randomly selected 50% of the sample scored by two independent experimenters (Drummond, et al., 2006).

AMT Procedure

Words were printed in *Arial* size 42 font on 120mm x 100mm laminated cards. Following task instructions (see Appendix H) children were presented with three practice trials using neutral words (*green, teacher, tired*). During the practice trial, prompting was given following any non-specific responses, and it was re-iterated that individuals could not use the same memory more than once. All but one participant answered at least one practice trial correctly. Following the practice trial, positive (*happy, interested, safe, successful, surprised*) and negative (*angry, careless, hurt, lonely, sad*) cue words were presented with alternated valence. No feedback was given in the case of incorrect responses. Participants were given one minute to respond. Each word was introduced with the question: 'What event does this word remind you of?' In cases where children were unsure of the meaning of the word 'successful' this was explained as 'good at something', and 'careless' as 'clumsy' (Drummond, et al., 2006). Generated memories were audio-recorded and transcribed for coding according to Williams (1992) criteria (Dalgleish, et al., 2007). Memories were coded as 'specific', 'overgeneral', 'repeated' (where the same memory was used for more than one word) or 'no memory' (where an answer was not provided in the time limit). A stop-watch was used to record response latencies for specific cue word answers. Autobiographical Memory Specificity Scores used in analysis were the number of specific responses for each child, the number of overgeneral responses, and the time it took each child to provide specific memories.

AMT responses were coded by the primary coder (HF). 28% of the recordings of participants' AMT responses were blind-rated by a second coder (PS) to test inter-

rater reliability. A Kappa of .92 was achieved for the overall task scores. We further explored rater's agreement on individual word scores. One word ('happy') had a kappa of .63. For all other words, Kappa was greater than .7 ('surprised', .77; 'careless', .81; 'angry' .81; all other words, 1.0). This indicates that there were high levels of agreement between raters (Landis & Koch, 1977). As was the case for the ADIS-C, 'unsure' items were double rated during testing, hence may have improved the reliability of coding. However, this applied to only 5 of the 120 memories scored, hence is unlikely to have significantly impacted interrater reliability.

Response Styles Questionnaire – Child Version, Rumination Subscale (CRSQ-RS) (Meiser-Stedman, et al., 2007a).

The RSQ is a 39-item self-report measure that measures what individuals think, feel or do when they experience depressed mood (Nolen-Hoeksema & Morrow, 1991). The CRSQ-RS is an adapted child version of the measure and includes feelings of fear in addition to feelings of depression. It is a 21-item self-report measure, with a choice of one of four responses ("never", "sometimes", "often", and "always") for each item. Higher scores indicate a more ruminative response style (Meiser-Stedman, et al., 2007a). Example items include: 'I think about how tired and achy I feel'; 'I wonder why I feel so different to other people.'

The CRSQ has been found to have good internal reliability (Cronbach's $\alpha=.93$), comparable to research in adults using the original measure, and good construct validity ($r(37) = .54, p < .0001$) (Meiser-Stedman, et al., 2007a).

Children completed the questionnaire to indicate their general responses to feeling sad or afraid. Internal reliability in the current sample was high, Cronbach's $\alpha = .94$.

Child Posttraumatic Cognitions Inventory (cPTCI) (Meiser-Stedman, Smith, Yule, & Dalgleish, 2009).

The CPTCI is a 25-item self-report questionnaire which assess how children have been thinking and feeling following a traumatic event (Meiser-Stedman, et al., 2009). It is adapted from the widely used adult version (PTCI, Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Participants indicate whether they 'don't agree at all', 'don't agree a bit', 'agree a bit', or 'agree a lot' with each statement. Higher total scores indicate

more negative trauma-related cognitions. Additionally, subtest scores may be used to assess the extent to which individuals feel there has been a ‘permanent and disturbing change’ since the trauma (cPTCI-PC), and that they feel themselves to be a ‘fragile person in a scary world’ (cPTCI-SW) (Meiser-Stedman, et al., 2009). Example items include: ‘anyone could hurt me’, ‘my reactions since the frightening event show that I must be going crazy’, and ‘life is not fair’.

The questionnaire has good internal consistency (Cronbach’s $\alpha > .75$), and test-retest reliability (at 6-8 weeks ($r=.76$, $p<.0001$ cPTCI-PC: $r=.70$, $p <.0001$ cPTCI-SW), and 3 months: ($r=.78$, $p<.0001$ cPTCI-PC: $r=.72$, $p < 0.001$ cPTCI-SW). It also has good discriminant validity (for PTSD, non-PTSD, ASD and non-ASD youth, in addition to trauma type), and convergent validity (Meiser-Stedman, et al., 2009). Cronbach’s $\alpha = .91$ suggesting high internal consistency in the current sample.

Posttraumatic Avoidance Scale (PAS) (Andrews, et al., 2013).

This is a 20-item self-report measure designed to assess trauma-related avoidance (see Appendix I). Individuals indicate on five-point Likert scale the frequency with which they currently think about the traumatic event (‘never’, ‘rarely’, ‘sometimes’, ‘often’ or ‘always’). Avoidance items may be subcategorised as ‘automatic’ or ‘controlled’. Example items include: ‘Do you try to put thoughts and memories of the event out of your mind?’ (controlled avoidance) and ‘Does it feel like the event never happened?’ (automatic avoidance) (Andrews, et al., 2013).

Pilot studies find the adult version of the questionnaire shows good internal consistency (Cronbach’s $\alpha=.87-.92$, [controlled avoidance]; Cronbach’s $\alpha = .80-.84$, [automatic avoidance]) and test-retest reliability ($r=.78$, [controlled avoidance]; $r=.73$, [automatic avoidance]) (Andrews, et al., 2013). Further, good convergent reliability with other validated measures of trauma-related distress have been found. For example, correlations with the avoidance subscale of the Impact of Events Scale (Horowitz et al., 1979) were $r=.74$ (controlled avoidance), and $r=.42$ (automatic avoidance) (Andrews, et al., 2013).

To date, the 20-item PAS has not been validated for use in children. Reading age was calculated using Microsoft Office Word 2007. Flesch reading ease was 82.4%

('easy'), and Flesch-Kincaid US Grade Level was found to be 3.6 (3rd Grade students are 8-9 years old) indicating an appropriate reading age for our sample. It was explicitly stated prior to administering the questionnaire that children should ask the researcher if they were unsure of the meaning of any items as 'some of the questions might not make sense'. Children were asked again during and upon completing the questionnaire if there were any questions they had not understood. Internal reliability in the current sample was found to be high, Cronbach's $\alpha = .91$.

Wechsler Abbreviated Scale of Intelligence (WASI), (Wechsler, 1999)

The vocabulary subtest of the WASI was used as an estimate of Verbal Comprehension and Full Scale IQ. It was chosen as it relatively quick and easy to administer. Factor analytic studies have found the WASI vocabulary subtest to correlate highly with Verbal Comprehension (.93) and WASI Full-Scale (4 subtest) IQ (.83) (Wechsler, 1999). It also correlates highly with other tests, for example, the correlation coefficient between the WASI and WAIS-III vocabulary subtest is .88 (Wechsler, 1999).

3.6 Procedure

Participants were approached for consent to be contacted by members of their care team in person or by letter within two weeks of attendance at A&E. In addition, posters were displayed in waiting and communal areas in the King's College Hospital Emergency department inviting individuals to contact the research team should they be interested in finding out more about the study. For children under the age of 16, consent to be contacted was sought from parents initially. Initial contact was followed up by a telephone call in a few days from the research worker. For families who agreed to participate in the study, a meeting with the researcher was arranged at a mutually convenient time. Young people were met either on site (at the ED, or research building), or at their homes where safe for the researcher to do so. Families who agreed to participate were seen within six weeks of their trauma. The young person participating in the study received a £10 voucher for participating (see Appendices C-F for information sheets).

3.7 Ethical Considerations

Informed consent, in accordance with NRES guidance, was obtained from both young people and their parents. Those under the age of 16 completed an assent form, and parents consented on their behalf. Closely monitored previous studies by the research team using the same recruitment strategy reported no adverse events (e.g. Salmond, et al., 2011), and as the current study did not require children to recount details of this or any past traumatic events, it was not predicted to cause distress. However, it was acknowledged that due to the inherent power imbalance when carrying out research with children, individuals may not have felt empowered to withhold consent or withdraw from the study. Participants were therefore reminded regularly that they were free to withdraw at any point during the research. Additionally, families were given a telephone number should they have any concerns about the symptoms their child was experiencing, and any young people identified with significant difficulties following their trauma were provided with relevant contact details for support. A total of seven out of 43 participants requested further help and support regarding their symptoms (one of these was concerned about symptoms he continued to experience as the result of a prior traumatic event).

4. Results

4.1 Overview

All statistical analysis was carried out using SPSS for Windows (Version 20.0). For demographic data, Pearson (exact) Chi-Square analyses were used to investigate differences in frequency between groups. For continuous variables t-tests were used when assumptions of normality were met; and the Mann-Whitney U test was used where data did not meet assumptions of normality. Specific analyses for the main hypotheses are described in detail within each of the relevant sections.

4.2 Demographic characteristics

4.2.1 *Participants versus non-participants*

During the recruitment period; 31st July 2012 and 5th March 2013, a total of 606 children aged between eight and 18 years were discussed during the weekly child review meeting. Of these, 372 (61.4%) were not eligible/appropriate to contact. The remaining 234 (38.6%) young people met eligibility criteria for the study. Of these, 46 (19.7 %) met with the researcher, 188 (80.3%) did not. Thirty-two individuals openly declined to take part in the study, the remaining participants were not included for other reasons (see Figure 2). Hence, of those who were contacted and able to participate in the study, 46 (59%) agreed to participate, 32 (41%) declined. Of those who met with the researcher, three (1.3%) individuals were excluded due to new information at assessment indicating they did not meet inclusion criteria (one had been intoxicated during the event and two because the incident had not been frightening). In total, 43 (18.4%) young people and 37 parents completed the study (see Figure 2).

There was no significant difference in age between participants and non-participants (median = 15, $p = .41$). Similarly, gender distribution ($p = .086$), trauma severity ($p = .51$), and trauma type ($p = .19$) did not differ significantly between the two groups (see Table 2).

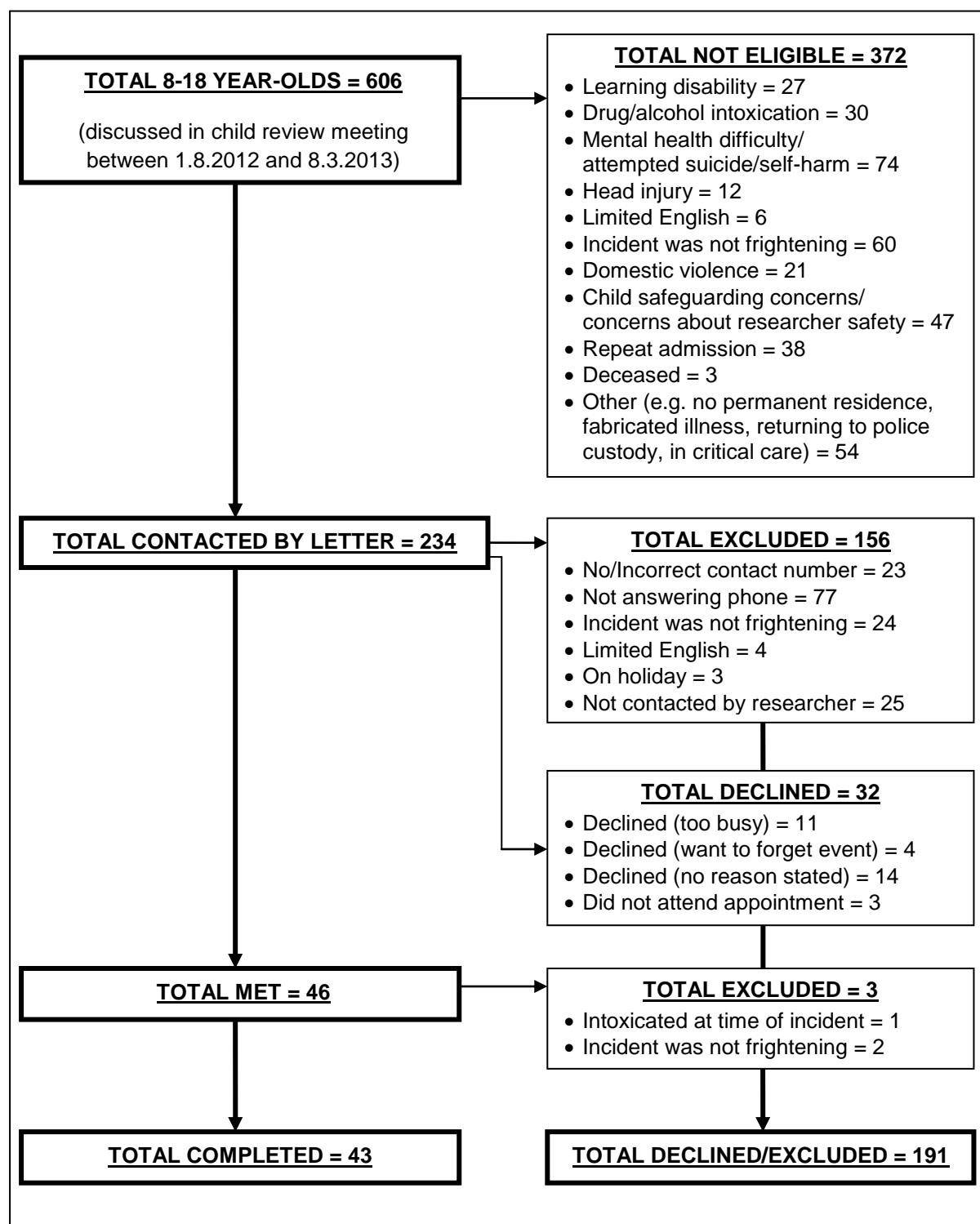
Figure 2. Recruitment flow-chart

Table 2. *Demographic characteristics of participants and non-participants.*

	PARTICIPANTS		NON-PARTICIPANTS		TEST STATISTIC ^a
N=234	n = 43		n = 191		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
Age (years)	13.52 (3.02)	15.0 (5.0)	13.82 (2.97)	15.0 (4.0)	$U = 3759, p = .409$
Trauma Severity	3.31 (1.79)	4.0 (3.0)	3.09 (1.63)	4.0 (3.0)	$U = 3858, p = .513$
	Freq.	(%)	Freq.	(%)	$\chi^2 (5) = 6.48, p = .263$
1.Immediate resuscitation	14	(32.6)	60	(31.4)	
2.Very urgent	0	(0.0)	2	(1.0)	
3.Urgent	5	(11.6)	32	(16.8)	
4.Standard	16	(37.2)	76	(39.8)	
5.Non-urgent	1	(2.3)	0	(0.0)	
6.Not triaged	7	(16.3)	21	(11.0)	
Gender (%)					$\chi^2 (1) = 3.10, p = .086$
Male	21	(48.8)	121	(63.4)	
Female	22	(51.2)	70	(36.6)	
Trauma Type (%)					$\chi^2 (6) = 8.72, p = .190$
Assault	18	(41.9)	81	(42.4)	
Road traffic accident	7	(16.3)	24	(12.6)	
Burn	6	(14.0)	17	(8.9)	
Fall	4	(9.3)	16	(8.4)	
Asthma/anaphylaxis	3	(7.0)	3	(1.6)	
Per vaginal bleeding/ miscarriage	2	(4.7)	13	(6.8)	
Other	3	(7.0)	37	(19.4)	

^a exact two-tailed significance reported

SD = Standard Deviation, IQR = Inter-quartile Range

4.2.2 Brief description of participating sample

Participants were interviewed between 14 and 41 days post-trauma ($M = 24.3$ days, $S.D. = 6.66$). 34 of these participants were recruited within the first four weeks of trauma ($M = 21.9$ days, $S.D. = 4.50$). A further nine were seen between 29 and 41 days post-trauma ($M = 33.8$ days, $S.D. = 4.82$).

Participants were aged between eight and 18 years (median = 15 years). 22 were female, 21 male. The majority of participants were 'White British' (23.3%), 'Black Caribbean' (18.6%), or 'any other mixed background' (16.3%). The median number of years the group had spent in full-time education was 10. Participants had a mean t-score of 48.9 ($S.D. = 10.8$) (~45th centile) on the measure of IQ. This means their performance was close to the population mean (the population mean being a t-score of 50/50th centile). Of those participating, 25.6% had experienced previous mental health difficulties. Most (79.1%) participants had been exposed to previous traumatic events (median = two prior events). There was no statistically significant difference between ASD and non-ASD groups on any of the aforementioned variables (see Appendix J).

In terms of trauma characteristics, trauma type, severity, loss of consciousness, hospital arrival mode and number of previous traumas were explored. 32.6% of participants were admitted directly to the resuscitation room. The majority did not lose consciousness (81.4%) during the traumatic incident, and most (62.8%) arrived at hospital by ambulance. 51.2% of the current sample reported that this event was the most frightening incident they had experienced in their lifetime, 30.2% found previous traumas more distressing (data was missing for 18.6% of individuals). These variables did not differ significantly between ASD and non-ASD groups (see Appendix K).

As expected, the ASD group scored significantly higher on measures of trauma symptom severity (the CPSS, including all subscales), and depression (the MFQ – child and parent versions) (See Table 3).

Table 3. *Difference between ‘ASD’ and ‘non-ASD’ groups on Self Report Measures*

	ASD		NON-ASD		TEST STATISTIC ^a
N = 43	n = 13		n = 30		
	Median ^b	Interquartile Range ^b	Median ^b	Interquartile Range ^b	
CPSS					
Total Score	25.0	(8.0)	11.5	(12.75)	U = 51.5, <i>p</i> = .000**
Re-experiencing Subscale	7.0	(5.0)	2.0	(6.0)	U = 70.5, <i>p</i> = .001*
Avoidance Subscale	M = 9.36	(SD = 3.14)	M = 5.31	(SD = 3.60)	t (41) = 3.02, <i>p</i> = .004*
Arousal Subscale	11.0	(3.0)	3.0	(6.0)	U = 42.5, <i>p</i> = .000**
Interference	4.0	(3.0)	1.0	(2.0)	U = 63.5, <i>p</i> = .000**
MFQ					
MFQ-Child Total	27.0	(29.0)	11.0	(15.25)	U = 97.5, <i>p</i> = .009*
MFQ-Parent Total	20.0	(9.0)	4.5	(12.5)	U = 55.0, <i>p</i> = .003*

^a exact two-tailed significance reported.

^b where variables were normally distributed, means (M) and standard deviations (SD) are reported.

* *p* < 0.01; ***p* < 0.001

ASD = acute stress disorder; CPSS = Child posttraumatic stress disorder symptom scale; MFQ = Mood and feelings questionnaire.

4.3 Tests of hypotheses

4.3.1 Hypothesis 1

The proportions of young people meeting the criteria for ASD/early PTSD will be similar to rates found in previous studies.

We aimed to establish whether incidence in the current sample replicated previously established rates of ASD/early PTSD.

In our total sample (N=43), rates of 'early PTSD' (PTSD minus time criteria) were 30.2% (n = 13). The overall sample rate of 'extended ASD' (ASD minus time criteria) was also found to be 30.2%. We explored this further by maintaining the DSM-IV time criteria in analysis. 34 participants were interviewed within four weeks of the traumatic event they had experienced, of these, 10 (29.4%) met full ASD diagnostic criteria, 24 (70.6%) did not. For the nine individuals interviewed more than 28 days post-trauma, three (33.3%) met diagnostic criteria for PTSD, six (66.7%) did not.

These rates are comparable to that of Salmond and colleagues (2011), who found that 38% of 8-17 year-old RTA and assault victims at the same hospital met criteria for ASD at two to four weeks post trauma. However, rates in our sample are somewhat elevated compared to some studies. For example, Meiser-Stedman and colleagues (2005) found 19.4% of their sample met criteria for ASD, and 24.7% 'early PTSD' within four weeks of trauma, and Kassam-Adams and colleagues (2004) who found 8% of their sample met full ASD criteria.

Visual inspection of the data revealed that one individual met diagnostic criteria for ASD at 18 days post-trauma, but not early PTSD. Conversely, a second individual met diagnostic criteria for early PTSD but not ASD at 28 days post-trauma. Of the remaining participants, those who met diagnostic criteria for 'early PTSD' also met diagnostic criteria for what, for the purposes of the current study, we have termed 'extended ASD' (ASD minus time criteria). In other words, whether or not participants were categorised according to 'early PTSD' or 'extended ASD' affected only two participants seen within the month post-trauma, and did not affect overall rates of diagnosis in the total sample (30.2% for both 'early PTSD' and 'extended ASD'). In order to maximise the sample size for analysis, we therefore chose to use the 'extended ASD' criteria for between-group diagnostic comparisons.

Summary: Hypothesis 1

Rates of ASD in the current study fell within the range established in previous studies, although were somewhat higher than some previously established rates.

4.3.2 Hypothesis 2

There will be a relationship between established statistical predictors of posttraumatic stress reactions and ASD and early PTSD in the current sample.

We aimed to evaluate whether the following established statistical predictors of posttraumatic stress reactions related to posttraumatic stress symptomatology (defined here according to ‘extended ASD’ criteria) in the current sample: rumination (as indicated by CRSQ-RS scores), avoidance (PAS ‘total’, ‘controlled’ and ‘automatic’ avoidance scores), posttraumatic cognitions (cPTCI ‘total’, cPTCI-PC and cPTCI-SW scores), parental anxiety and depression (HADS-A and HADS-D scores), and previous emotional and behavioural difficulties (SDQ ‘total’, ‘emotional symptoms’, ‘conduct problems’, ‘hyperactivity’, ‘peer problems’ scores, and ‘reduced helping behaviours’ and ‘impact’).

The analysis was conducted in two stages;

Stage 1. Firstly, we investigated whether there were significant differences in scores on these statistical predictor variables between those with extended ASD (‘ASD’) and those without (‘non-ASD’). Independent sample t-tests were used when assumptions of normality were met. Where assumptions of normality were not met, the Mann-Whitney U test was used.

Table 4. Differences between ASD and Non-ASD group scores on established statistical predictors of ASD

	ASD		NON-ASD		TEST STATISTIC ^a
N = 43	n = 13		n = 30		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
CRSQ-RS					
Total Score	26.8 (15.8)	26.0 (12.0)	17.4 (12.9)	16.5 (18.0)	$U = 115, p = .032^*$
PAS					
Total Score	41.8 (15.6)	43.0 (22.0)	23.3 (14.8)	20.5 (22.0)	$U = 78.5, p = .001^{**}$
Controlled Avoidance	27.0 (26.0)	10.32 (16.0)	13.6 (8.5)	12.2 (21.25)	$U = 81.5, p = .002^{**}$
Automatic Avoidance ^b	13.9 (7.09)		9.47 (7.61)		$t(41) = 1.80, p = .079$
cPTCI					
cPTCI-Total	57.4 (14.0)	56.0 (9.0)	42.6 (11.4)	39.5 (13.25)	$U = 82.0, p = .002^{**}$
cPTCI-permanent and disturbing change	27.5 (8.68)	26.0 (7.0)	18.7 (5.06)	18.0 (6.75)	$U = 65.5, p = .000^{***}$
cPTCI-scary world ^b	29.9 (6.25)		24.0 (7.18)		$t(41) = 2.27, p = .029^*$
HADS					
HADS-Anxiety ^b	9.91 (3.65)		7.21 (4.26)		$t(35) = 1.85, p = .073$
HADS-Depression	5.27 (2.72)	4.0 (5.0)	4.70 (3.68)	4.0 (6.0)	$U = 117, p = .402$
SDQ					
SDQ Total	12.5 (5.11)	14.0 (7.0)	10.2 (6.89)	8.0 (9.5)	$U = 100, p = .160$
SDQ Emotional distress	4.00 (2.14)	4.0 (3.0)	2.58 (2.41)	2.5 (4.0)	$U = 83.5, p = .047^*$
SDQ Behavioural difficulties	2.18 (1.25)	2.0 (2.0)	1.79 (1.59)	2.0 (3.0)	$U = 120, p = .460$
SDQ Hyperactivity ^b	4.1 (2.95)		3.75 (2.41)		$t(35) = .34, p = .734$
SDQ Peer problems	2.27 (1.56)	2.0 (3.0)	2.04 (2.48)	1.0 (3.0)	$U = 117, p = .402$
SDQ Kind and helpful behaviour	7.55 (2.62)	8.0 (4.0)	7.80 (2.15)	8.5 (4.75)	$U = 134, p = .781$
SDQ impact	1.45 (1.92)	1.0 (2.0)	.58 (1.41)	.00 (.00)	$U = 80.5, p = .067$

^a exact two-tailed significance reported.^b normally distributed variable, therefore medians and standard deviations not reported.* $p < 0.5$; ** $p < 0.01$; *** $p < 0.001$

CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI = child posttraumatic cognitions inventory; SDQ = strengths and difficulties questionnaire.

Rumination

Those in the ASD group scored significantly higher on the CRSQ-RS than those in the non-ASD group, ($p = .032$), indicating that those with ASD were more likely to ruminate than those without (see Table 4).

Avoidance

PAS total scores indicated that those with ASD showed on average more signs of posttraumatic avoidance than those without. This difference was highly significant between groups ($p = .001$). Analysis of avoidance subscales indicated that whilst those with ASD were significantly more likely to use controlled avoidance strategies than those without ($p = .002$), there was no significant difference between ASD and non-ASD in their tendency to use automatic avoidance strategies ($p = .079$) (see Table 4).

Posttraumatic Cognitions

There was a significant difference in total cPTCI scores between groups ($p = .002$). ASD participants tended to score higher than non-ASD participants.

Analysis of cPTCI subscale scores indicated that the degree to which individuals felt there to have been a permanent and disturbing change since the trauma was higher in those with ASD than those without. This difference was highly significant (cPTCI-PC; $p = .000$). cPTCI-SW scores for ASD participants were also found to be significantly higher than those without ASD, ($p = .029$), indicating that those in the ASD group were more likely than those in the non-ASD group to consider themselves to be 'a fragile person in a scary world' (see Table 4).

Parental anxiety and depression

There was no significant difference between groups, difference in parental anxiety scores ($p = .073$). Similarly, the difference in parental depression scores were not significantly different between ASD and non-ASD groups ($p = .402$) (see Table 4).

Prior emotional and behavioural difficulties

Parents' overall ratings of their children's strengths and difficulties did not differ significantly between ASD and non-ASD groups ($p = .160$). In-line with this overall

finding, subtest scores indicating children's behavioural difficulties, levels of hyperactivity, difficulties with peers, kind and helpful behaviour, and the impact of difficulties did not differ significantly between groups ($p = .460; 7.34; .402; .781; .067$, respectively). In contrast, the difference between diagnostic groups on SDQ 'emotional distress' scores just reached significance, $p = .047$, indicating that those with ASD were rated by parents to have suffered more emotional distress in the six months prior to their trauma than those without (see Table 4).

Stage 2. Secondly, we investigated the relationship between the same statistical predictor variables and the secondary outcome measure, symptom severity using CPSS scores. Data was not normally distributed; therefore Spearman's Correlations were used to test for these associations.

Rumination

In-line with comparisons between groups, there was a highly significant correlation between posttraumatic stress symptom severity and rumination scores, $p = .000$ (see Table 5).

Avoidance

Individuals experiencing greater symptom severity were significantly more likely to use avoidance strategies, $p = .000$. However, in contrast to the prior analysis, significant relationships were found for *both* controlled, $p = .000$, and automatic avoidance, $p = .000$, scale scores (see Table 5).

Posttraumatic Cognitions

When examined in relation to symptom severity, the correlations between cPTCI-Total, cPTCI-PC and cPTCI-SW scores were all found to be highly significant ($p = .000$ for all three measures) (see Table 5).

Parental anxiety and depression

As was the case for between-group comparisons, the relationship between child symptom severity and parental anxiety and depression scores was not statistically significant ($p = .479; p = .086$ respectively) (see Table 5).

Prior emotional and behavioural difficulties

In-line with between group findings, parental scores of their child's degree of emotional distress in the six months prior to the traumatic event significantly correlated with symptom severity ($p = .000$). In addition, significant relationships between CPSS scores and SDQ 'total' and 'peer problems' scores were found ($p = .026$ and $p = .028$ respectively). As was the case for the comparison between ASD and non-ASD groups, the relationship between symptom severity and SDQ, 'behavioural difficulties', 'hyperactivity', 'kind and helpful behaviour' and 'impact' scores was not statistically significant ($p = .471$; .588; .898; .075 respectively) (see Table 5).

Table 5. *Correlations between CPSS total scores and statistical predictors of ASD*

N = 43	TEST STATISTIC ^a
CRSQ-RS	
Total Score	$r_s(41) = .76, p = .000^{**}$
PAS	
Total Score	$r_s(41) = .83, p = .000^{**}$
Controlled Avoidance	$r_s(41) = .76, p = .000^{**}$
Automatic Avoidance	$r_s(41) = .61, p = .000^{**}$
cPTCI	
cPTCI Total	$r_s(41) = .79, p = .000^{**}$
cPTCI-Permanent and disturbing change	$r_s(41) = .82, p = .000^{**}$
cPTCI-Scary world	$r_s(41) = .61, p = .000^{**}$
HADS	
HADS-Anxiety	$r_s(34) = .12, p = .479$
HADS-Depression	$r_s(34) = .29, p = .086$
SDQ	
SDQ Total	$r_s(34) = .37, p = .026^*$
SDQ Emotional distress	$r_s(34) = .60, p = .000^{**}$
SDQ Behavioural difficulties	$r_s(34) = .12, p = .471$
SDQ Hyperactivity	$r_s(34) = .09, p = .588$
SDQ Peer problems	$r_s(34) = .36, p = .028^*$
SDQ Kind and helpful behaviour	$r_s(34) = .02, p = .898$
SDQ Impact	$r_s(34) = .31, p = .075$

^a exact significance, two-tailed

* $p < 0.05$; ** $p < 0.001$

CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI = child posttraumatic cognitions inventory; SDQ = strengths and difficulties questionnaire.

Summary: Hypothesis 2

In summary, there was a significant difference between those meeting ASD criterion, and those who did not on child self-report measures of established statistical predictors of posttraumatic stress symptomatology (rumination, posttraumatic avoidance, and posttraumatic cognitions). This was true of total and subtest scores on measures, except for PAS automatic avoidance where scores did not differ significantly between groups. The relationship between these predictors and symptom severity scores was found to be more highly significant than when group differences were examined. Here, the PAS automatic avoidance subtest was also found to significantly correlate with symptom severity scores.

Parent questionnaires revealed a somewhat more mixed pattern of findings. Parental anxiety and depression scores were not significantly different between ASD and non-ASD groups, and did not correlate significantly with children's symptom severity scores. Parent ratings of their children's difficulties in the past six months revealed only emotional distress to significantly differ between ASD and non-ASD groups. When examined in relation to severity scores, parents' ratings of their children's overall strengths and difficulties, and peer problems were also found to correlate with symptom severity.

4.3.3 Hypothesis 3:

There will be a relationship between Overgeneral Autobiographical memory and depression; and posttraumatic stress symptomatology.

We aimed to establish whether overgeneral autobiographical memory was related to posttraumatic stress symptomatology and depression. For depression, a correlation analysis was used to correlate AMT scores with the continuous outcome variable; depression severity (indicated by MFQ-C and MFQ-P scores). For ASD, preliminary analysis tested for differences between OGM (as indicated by AMT performance) according to ASD diagnosis (as indicated by ADIS category) using independent samples t-tests for variables meeting assumptions of normality, and the Mann-Whitney test for those which did not. Correlation analysis was then used to compare AMT scores with the continuous outcome variable; symptom severity (indicated by

CPSS total score). ‘No memory’ and ‘repeated memory’ responses were not included in these analyses as very few incidents of these occurred (see Appendix L).

Note: We predicted that IQ, gender and age may correlate with OGM. Correlation analysis revealed a significant relationship for OGM and gender only (see Appendix M). We therefore re-ran our analysis using rank-ordered data, controlling for gender.

Overgeneral autobiographical memory and depression

Table 6. *The relationship between OGM and children’s depression scores*

	Bivariate Correlation	Partial Correlation ^a
N = 43		
SPECIFIC MEMORIES		
Total memories	$r_s(41) = -.35, p = .022^*$	$r_s(40) = -.27, p = .083$
Positive cue	$r_s(41) = -.40, p = .007^{**}$	$r_s(40) = -.35, p = .022$
Negative cue	$r_s(41) = -.23, p = .146$	$r_s(40) = -.13, p = .426$
OVERGENERAL MEMORIES		
Total memories	$r_s(41) = .32, p = .035^*$	$r_s(40) = .24, p = .129$
Positive cue	$r_s(41) = .35, p = .023^*$	$r_s(40) = .29, p = .065$
Negative cue	$r_s(41) = .26, p = .098$	$r_s(40) = .16, p = .323$
RESPONSE LATENCIES (seconds)		
Total specific cue memories	$r_s(41) = -.16, p = .308$	$r_s(40) = -.15, p = .353$
Positive specific cue memories	$r_s(41) = -.10, p = .528$	$r_s(40) = -.09, p = .563$
Negative specific cue memories	$r_s(41) = -.08, p = .623$	$r_s(40) = -.07, p = .648$

^a Controlling for gender

* $p < 0.5$, ** $p < 0.001$

Specific Memories

There was a significant correlation between depression symptom severity scores and the number of specific memories generated in response to total ($p = .022$) and positive cue words ($p = .007$). The number of specific memories generated in response to negative cue words did not significantly correlate with symptom severity ($p = .146$). When gender was controlled for, specific memories generated in response to positive cues only remained significant ($p = .022$) (see Table 6).

Overgeneral Memories

Depression symptom severity was found to significantly correlate with the number of overgeneral memories recalled in response to total ($p = .035$), and positive ($p = .023$) cue words. The relationship was not significant for negative cue words ($p = .098$).

However, when the influence of gender was accounted for, these relationships were no longer found to be significant (see Table 6).

Response Latencies

There was no significant relationship between response latencies and symptom severity (see Table 6).

Note: Correlations between MFQ-P and AMT scores were not found to be significant and are not reported here.

Overgeneral autobiographical memory and posttraumatic stress symptomatology

Stage 1.

As for Hypothesis 1, we first investigated whether there were significant differences in scores on AMT variables between those with extended ASD and those without. Independent sample t-tests were used when assumptions of normality were met. Where assumptions of normality were not met, the Mann-Whitney U test was used.

Specific Memories

The number of specific memories generated in response to cue words did not differ significantly between ASD and non-ASD groups. This was found when responses to all 10 cue words were analysed, and similarly when responses to positive cues, and negative cues were explored separately ($p = .130$; $.066$, $.456$, respectively) (see Table 7).

Overgeneral Memories

Similarly, ASD and non-ASD groups did not differ significantly on the number of overgeneral memories recalled in total ($p = .083$), and in response to negative cue words ($p = .265$). However, those in the ASD group did recall significantly more overgeneral memories in response to positive cue words in comparison to the non-ASD group ($p = .039$) (see Table 7).

AMT Response Latencies

The time for ASD and non-ASD groups to provide specific memory answers did not differ significantly when total ($p = .062$) and negative cue word ($p = .193$) responses were analysed. In contrast, those in the ASD group were significantly faster at recalling specific positive memories than those in the non-ASD group ($p = .007$) (see Table 7).

Table 7. Differences in overgeneral autobiographical memory according to acute stress disorder diagnosis.

	ASD		NON-ASD		TEST STATISTIC ^a
N = 43	n = 13		n = 30		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
SPECIFIC MEMORIES					
Total	6.31 (2.75)	7.0 (4.5)	7.67 (1.99)	8.0 (3.0)	$U = 137.50, p = .130,$
Positive cues	2.92 (1.44)	3.0 (2.0)	3.77 (1.22)	4.0 (2.0)	$U = 125.50, p = .066$
Negative cues	3.38 (1.56)	3.0 (3.0)	3.87 (1.14)	4.0 (1.25)	$U = 166.00, p = .456$
OVERGENERAL MEMORIES					
Total	3.62 (2.81)	3.0 (5.0)	2.00 (1.91)	1.5 (2.5)	$U = 129.50, p = .083,$
Positive cues	2.00 (1.47)	2.0 (2.0)	1.07 (1.17)	1.0 (1.25)	$U = 117.00, p = .039^*$
Negative cues	1.62 (1.56)	2.0 (3.0)	.97 (1.13)	1.0 (1.0)	$U = 152.50, p = .265,$
RESPONSE LATENCIES (seconds)					
Total specific memories	5.35 (3.69)	4.13 (4.62)	7.89 (4.58)	7.22 (6.32)	$U = 124.0, p = .062$
Positive cues specific memories	4.18 (3.40)	3.53 (4.25)	7.50 (4.86)	6.68 (4.89)	$U = 95.00, p = .007^{**}$
Negative cues specific memories	6.15 (4.06)	4.58 (6.26)	8.21 (5.81)	6.60 (5.58)	$U = 145.00, p = .193$

^a exact two-tailed significance reported

SD = Standard Deviation, IQR = Interquartile Range

Stage 2.

As for Hypothesis 2, we next investigated the relationship between the same statistical predictor variables and the secondary outcome measure, symptom severity using CPSS scores. Data was not normally distributed; therefore Spearman's Correlations were used to test for these associations.

Specific Memories

In line with comparisons between groups, the relationship between posttraumatic stress symptom severity and the number of specific memories recalled in response to the AMT task was not statistically significant. This was found for 'total', 'positive cue' and 'negative cue' groups ($p = .237; .125; .489$ respectively) (see Table 8).

Overgeneral Memories

The number of overgeneral memories generated in response to total, positive, and negative cue words did not significantly correlate with symptom severity ($p = .255$; $.239$; $.291$, respectively) (see Table 8).

Response Latencies

Similarly, response latencies did not significantly correlate with symptom severity when specific memory responses were analysed with respect to total ($p = .390$), positive cue ($p = .109$), or negative cue words ($p = .603$) (see Table 8).

Note: Controlling for gender did not alter the significance of findings (see Table 8). Data was not controlled for in stage 1 of this analysis because sample sizes in each group would have been too small and hence an ANCOVA would have been underpowered.

Table 8. *The relationship between overgeneral autobiographical memory and PTSD symptom severity*

	Bivariate Correlation	Partial Correlation ^a
N = 43		
SPECIFIC MEMORIES		
Total memories	$r_s(41) = -.27, p = .078$	$r_s(40) = -.09, p = .578$
Positive cues	$r_s(41) = -.24, p = .125$	$r_s(40) = -.17, p = .272$
Negative cues	$r_s(41) = -.11, p = .489$	$r_s(40) = .004, p = .980$
OVERGENERAL MEMORIES		
Total memories	$r_s(41) = .18, p = .255$	$r_s(40) = .08, p = .633$
Positive cues	$r_s(41) = .18, p = .239$	$r_s(40) = .11, p = .490$
Negative cues	$r_s(41) = .17, p = .291$	$r_s(40) = .19, p = .236$
RESPONSE LATENCIES (seconds)		
Total specific memories	$r_s(41) = -.13, p = .390$	$r_s(40) = -.20, p = .209$
Positive cue specific memories	$r_s(41) = .25, p = .109$	$r_s(40) = -.25, p = .113$
Negative cue specific memories	$r_s(41) = -.08, p = .603$	$r_s(40) = -.08, p = .627$

^a rank-order partial correlations, controlling for gender

Summary: Hypothesis 3

There was a significant relationship between depression symptom severity and the total number of overgeneral and specific memories recalled in response to tasks. However, when gender was controlled for, only the relationship between specific memories in response to positive cue words remained significant. Visual inspection of the data revealed that more depressed children retrieved fewer specific positive memories (see Appendix N). Response latencies did not significantly correlate with depression severity scores.

In contrast, the relationship between early posttraumatic stress symptoms and responses to the AMT responses were largely found not to be statistically significant, with a few notable exceptions. Those with an ‘extended ASD’ diagnosis retrieved significantly more overgeneral memories in response to positive cue words, and were significantly faster at retrieving positive specific memories than those in the non-ASD group. The relationship between AMT task performance and posttraumatic stress symptom severity scores was not significant.

4.3.4 Hypothesis 4.

OGM will statistically predict depression and posttraumatic stress symptom severity in our sample over and above established statistical predictors of posttraumatic stress disorders.

Step-wise linear regressions were used to test Hypothesis 4. In order to reduce the impact of multi-collinearity, total scores only, rather than subtest scores were used.

Statistical Predictors of Posttraumatic Stress Symptom Severity

Analysis was conducted in three stages. AMT variables were not included in these analyses as they were not found to correlate significantly with our outcome variable, CPSS total scores.

Stage 1. In our first regression analysis, PAS-total, cPTCI-total, CRSQ-RS-total, HADS-depression and SDQ ‘emotional distress’ scores were entered as predictor variables, with CPSS total scores as the outcome variable.

Regression analysis revealed children's scores on our measure of avoidance statistically predicted 67% of the variance in posttraumatic stress symptom severity scores. Children's negative appraisals accounted for a further 14% of the variance in our model (see Table 9).

Table 9. *Step-wise linear regression analysis of statistical predictors of posttraumatic stress severity scores.*

Statistical predictor variable model	R ²	R ² change	F	df	Step 2 β coefficient	Step 2 t-value
Step 1. CPAS-total	.67	.67	70.02*	1, 35	.50	5.18*
Step 2. cPTCI-total	.81	.14	73.59*	1, 35	.50	5.14*

* $p < 0.001$

PAS = posttraumatic avoidance scale; cPTCI=child posttraumatic cognitions inventory

Given the likelihood that these findings may have been artefact of high correlations between PAS and the CPSS 'avoidance' symptom cluster, two further linear regressions were conducted to help elucidate this relationship; firstly we excluded the PAS but retained all three subscales of the CPSS. Next, we included the PAS as a statistical predictor variable, but excluded the 'avoidance' subscale or the CPSS.

Stage 2. CRSQ-RS, cPTCI total, HADS-depression, and SDQ 'emotional distress' scores were entered as statistical predictor variables into our linear regression model in a step-wise fashion. CPSS total scores were our outcome variable.

Regression analysis showed that our measure of negative appraisals accounted for 66% of the variance of children's posttraumatic stress symptom severity scores; when our measure of rumination was included in the regression, this explained an additional 6% in variance (see Table 10).

Table 10. *Step-wise linear regression analysis of statistical predictors of posttraumatic stress severity scores^a*

Statistical predictor variable model	R ²	R ² change	F	df	Step 2 β coefficient	Step 2 t-value
Step 1. cPTCI-total score	.66	.66	69.2**	1, 35	.57	4.26**
Step 2. CRSQ-RS total score	.72	.06	43.5*	2, 34	.34	2.58*

^aPosttraumatic avoidance scale scores not entered

* $p < 0.05$; ** $p < 0.001$

cPTCI=child posttraumatic cognitions inventory; CRSQ-RS=child response styles questionnaire – rumination subscale.

Stage 3. CRSQ-RS, cPTCI total, HADS-depression, SDQ ‘emotional distress’ and PAS scores were entered as statistical predictor variables into our step-wise linear regression model. The CPSS ‘avoidance’ subscale was excluded from our analyses; hence we used the sum of CPSS ‘re-experiencing’ and ‘arousal’ symptoms as our outcome variable.

Regression analysis revealed that posttraumatic avoidance accounted for 62% of the variance of posttraumatic stress symptom severity scores in our sample. Negative appraisals accounted for a further 12% of variance over and above that which is statistically predicted by negative appraisals. When rumination was included in the model, this accounted for a further 3% of the variance in symptom severity scores (see Table 11).

Table 11. *Step-wise linear regression analysis of predictors of posttraumatic stress severity scores^b.*

Statistical predictor variable model	R ²	R ² change	F	df	Step 3 β coefficient	Step 3 t-value
Step 1. PAS total score	.62	.62	56.7*	1,35	.44	3.94**
Step 2. cPTCI total score	.74	.12	47.6*	2,34	.29	2.19*
Step 3. CRSQ-RS total score	.77	.03	36.5*	3,33	.27	2.13*

^b minus avoidance subscale, * $p < 0.001$, $p < 0.05$

PAS = posttraumatic avoidance scale; cPTCI=child posttraumatic cognitions inventory; CRSQ-RS=child response styles questionnaire – rumination subscale.

Statistical Predictors of Depression Symptom Severity

CRSQ-RS, PAS total, cPTCI total, HADS-depression, SDQ ‘emotional distress’, as these significantly correlated with depression severity scores (see Appendix O) and AMT specific responses to positive cue-word tasks were entered as statistical predictor variables. Gender was also entered given its relationship with AMT scores.

Table 12. *Step-wise linear regression analysis of predictors of depression severity scores.*

Statistical predictor variable model	R ²	R ² change	F	df	Step 2 β coefficient	Step 2 t-value
Step 1. CRSQ-RS total score	.74	.74	97.25*	1, 35	.59	5.25**
Step 2. cPTCI total score	.80	.06	67.51*	2, 34	.37	3.28*

* $p < 0.001$, $p < 0.01$

Regression analysis found children's scores on our measure of rumination accounted for 74% of the variance in our model. Retaining negative appraisals explained a further 6% of the variance in children's depression severity scores. No other statistical predictor variable accounted for any unique variance in the model above and beyond these two measures (see Table 12).

Summary: Hypothesis 4

Children's posttraumatic stress symptom severity scores were statistically predicted by the number of posttraumatic avoidance strategies they endorse in addition to their negative appraisals and, to a lesser extent, the degree to which they ruminate in response to affective disturbance. Avoidance and negative appraisals together accounted for 81% of the variance in posttraumatic stress symptom severity scores. Even when the CPSS avoidance subscale was omitted from analysis, scores on the posttraumatic avoidance scale was the best statistical predictor posttraumatic stress symptom severity, accounting for the greatest amount of unique variance in scores.

In contrast, children's rumination in response to affective disturbance, and, to a lesser degree, their negative appraisals best statistically predicted children's depression symptom severity scores. Together, these variables accounted for 80% of the variance in children's depression severity scores.

5. Discussion

5.1 Chapter Summary

The chapter begins with a summary of our findings. Results are then considered in detail with respect to the existing literature. The limitations of the current study are reviewed, and theoretical and clinical implications of findings then discussed.

5.2 Summary of findings

The present study tested novel predictions regarding OGM and children's early reactions to trauma. Our findings were mixed. In relation to depression severity, we found that those with greater symptom severity were less likely to provide specific autobiographical memories in response to positive cue words. Other correlations were not significant. For ASD, there was some evidence of between-group differences on AMT performance; those with ASD generated significantly more overgeneral memories in response to positive cue words than those without. However, ASD participants generated specific positive responses significantly faster than those in the non-ASD group. In contrast to between-group findings, no significant relationship was found between ASD and posttraumatic symptom severity in our sample. OGM was not found to be a good statistical predictor of either depression or posttraumatic stress symptom severity in children.

Cognitive factors were highly predictive of symptom severity rates in our sample when entered as statistical predictors in a step-wise linear regression analysis. Rumination accounted for the most unique variance in children's depression severity scores, and together with negative appraisals accounted for 80% of the variance in scores in our sample. For posttraumatic stress symptoms children's self-reported levels of avoidance and negative appraisals best predicted severity, accounting for 81% of the variance in children's scores. The degree to which children ruminated accounted for a small amount of variance in our model when the posttraumatic avoidance scale was excluded from analysis (6%), and when avoidance symptoms were omitted, but the PAS retained (3%). Due to the cross-sectional nature of our design, assumptions cannot be made about the 'real world' predictive value of these variables.

In line with previous research, we found ASD and early PTSD to represent a significant minority of our sample (about a third of participants). Although rates were comparable to those found in previous studies (e.g. Salmond, et al., 2011) they were somewhat higher than most (Meiser-Stedman, et al., 2007a). Rates varied only slightly (between 29.4% and 33.3%) depending on whether participants were classified according to ASD, PTSD, 'early PTSD', or 'extended ASD' criterion.

Finally, child self-report measures of cognitive variables implicated by an adult model of PTSD (Ehlers & Clark, 2000) significantly related to the presence of early posttraumatic stress reactions in our sample. The exception was automatic avoidance which was not found to significantly differ between ASD and non-ASD groups, but did correlate with symptom severity. In contrast, parental reports of their children's prior emotional and behavioural difficulties related less well to symptomatology, and parental mental health difficulties were not found to relate to children's symptoms.

These findings are now discussed in more detail with relation to the literature.

5.3 Hypothesis 1

The proportions of young people meeting the criterion for ASD/PTSS will be similar to rates found in previous studies.

We found rates of posttraumatic stress disorders in the current sample to be at the higher end of previous prevalence estimates in other samples. Interestingly, rates of 'extended ASD' and 'early PTSD' in the current study were found to be the same. With the exception of two individuals who warranted one, but not the other diagnosis, individuals with an ASD or 'extended ASD' diagnosis also met 'early PTSD' criteria.

Whilst prevalence rates in our sample (between 29.4% and 33.3% depending on diagnosis) are comparable to some, they are higher than the majority. For example, in a sample of assault and motor vehicle accident victims (aged eight to 17 years), recruited from the same hospital, Salmond and colleagues (2011) found rates of ASD to be 38% in their sample. In contrast, Sinclair, Salmon & Bryant (2007) found rates in child and adolescent emergency department attendees to be 17%, and other studies report prevalence of ASD and/or early PTSD between 5% and 20% (e.g.

Bryant et al., 2007; Ellis, et al., 2009; Kassam-Adams & Winston, 2004; Meiser-Stedman, et al., 2007a; 2009).

There may be a number of explanations as to why rates in the current sample are comparatively high. Firstly, our sample does not represent those who experienced traumatic events that were not found frightening at the time. Peri-traumatic fear has been implicated as a statistical predictor of subsequent post traumatic stress reactions (e.g. Lack & Sullivan, 2008; Trickey, et al., 2012). Hence, including only children who responded with peri-traumatic fear (as per DSM-IV-TR Criteria A2, see Table 1) may have led to decreased rates of non-ASD participants. Secondly, although effect sizes vary widely across studies, there is some evidence that trauma severity may statistically predict posttraumatic stress reactions (more severe traumas predicting more severe responses) (Trickey, et al., 2012). Our recruitment procedure meant that those with minor injuries for whom there were no safeguarding concerns may not have been contacted about the study. In contrast, all those admitted immediately to the resuscitation room were contacted if eligible. Hence, those with minor injuries were less likely to be contacted about the study than those who with more serious injuries, which may have biased the sample. Between-group comparison revealed that there was no significant difference between the trauma severity of ASD and non-ASD groups in our sample, however, only one participant was classified as 'non-urgent'.

Despite comparatively high prevalence rates, it should be noted that the majority of participants in the current study did not meet diagnostic criterion for posttraumatic stress disorders. Hence, the main aims of the study; to further our understanding of differences between those who develop posttraumatic stress reactions and those who do not, and to understand the relationship between OGM and posttraumatic stress reactions are not undermined.

With regards to the overlap in diagnostic criteria found in the present study, other studies have reported similar comparability between ASD and early PTSD criterion. For example, Meiser-Stedman and colleagues (2005) found in a sample of 93 child motor vehicle accident and assault victims that 19.4% met diagnostic criteria for ASD, 24.7% for early PTSD. Furthermore, the early PTSD diagnosis captured all

cases of ASD (Meiser-Stedman, et al., 2005; 2007a). While these results may suggest some redundancy of the ASD diagnosis, these authors also noted that the additional dissociation criteria characteristic of an ASD diagnosis independently associated with a number of cognitive variables such as subjective appraisal of threat, meta-cognitions and trauma memory quality, hence may be useful to retain (Meiser-Stedman, et al., 2007a).

5.4 Hypothesis 2

Established statistical predictors of posttraumatic stress reactions will relate to rates of posttraumatic stress symptomatology in the current sample.

5.4.1 Rumination

We found that those with ASD are more likely to ruminate than those without. Greater posttraumatic stress symptom severity correlations with increasing levels of rumination were more statistically significant than between-group differences.

These findings add to a growing body of literature that implicate the importance of rumination with regards to reactions to trauma in children (e.g. Ehlers, et al., 2003; Meiser-Stedman, et al., 2007a). Ehlers & Clark (2000) suggest that rumination plays a role in the maintenance of posttraumatic stress reactions. For example, it may serve to strengthen negative appraisals and prevent elaboration of the trauma memory (Ehlers & Clark, 2000). Although the degree to which rumination maintains posttraumatic stress cannot be ascertained from our cross-sectional data, these findings are promising with regards to the applicability of this aspect of the Ehlers & Clark (2000) model in children.

5.4.2 Avoidance

The current study found group differences on a relatively new measure of posttraumatic avoidance, the PAS (Andrews, et al., 2013). Interestingly, differences were significant for total scores, and the controlled avoidance subscale, but ASD and non-ASD groups did not differ on their levels of automatic avoidance. When the relationship was analysed using symptom severity scores, correlations between 'total' avoidance scores, and both 'controlled' and 'automatic' avoidance subscales

were found to be highly significant. The more symptoms children experienced, the more likely they were to engage in avoidant coping strategies.

These findings are in line with a growing number of studies in implicating the role of avoidance in children's early posttraumatic stress reactions (e.g. Kassam-Adams, et al., 2012; Stallard, 2003). In addition, although to the author's knowledge only one other study has used the PAS, Andrews and colleagues' research group also found controlled avoidance (e.g. deliberately trying not to think about the event) to be more strongly related to PTSD symptoms than automatic avoidance (e.g. emotional numbing) using this measure in an adult sample. The reason for the between-group difference on automatic avoidance is unclear. For example, it is possible that automatic avoidance symptoms are present in many post-trauma, but are less important than other symptoms (e.g. controlled avoidance, re-experiencing, arousal) in determining diagnosis.

Broadly, our findings fit with predictions of the Ehlers and Clark (2000) model. They proposed that avoidance plays an important role in posttraumatic stress reactions, and may act in a number of ways to maintain symptoms. For example, avoiding thinking about the event, or avoiding reminders of the event (such as people or places) may prevent both change in the nature of the trauma memory (e.g. by preventing elaboration of the memory) and/or change in negative appraisals relating the event and/or its sequelae (Ehlers & Clark, 2000).

That there may be a difference between controlled and automatic avoidance strategies is interesting. As noted by Ehlers and Clark, 2000, the occurrence of flashbacks and reliving appear to result from an unconscious, automatic process. In contrast, controlled, top-down retrieval of details of traumatic events is harder for individuals with PTSD symptoms (Ehlers & Clark, 2000). Although findings are clearly tentative at this stage, it appears that conscious attempts to avoid the trauma may be more important than automatic ones in differentiating those who develop ASD and those who do not. This may be important because controlled avoidance strategies can be easily targeted in therapy and are amenable to change, in contrast, automatic avoidance strategies are not (Andrews, et al., 2013) (see 'Implications' section for further discussion).

5.4.3 Posttraumatic Cognitions

In line with previous research, our study found a significant relationship between ASD diagnosis and posttraumatic stress symptomatology, and the degree to which children considered themselves to be ‘a fragile person in a scary world’ and that there had been a ‘permanent and disturbing change’ as a result of the trauma.

These findings add to a relatively well-established body of evidence in children implicating the role of negative appraisals in children’s early responses to trauma (e.g. Bryant, et al., 2007; Ehlers, Mayou, & Bryant, 2003; Ellis, et al., 2009; Leeson & Nixon, 2011; Salmon, et al., 2007; Salmond, et al., 2011; Stallard, 2003). Our study was cross-sectional in nature, therefore we can only speculate with regard to the role of appraisals in the formation and maintenance of symptoms. However, there is also evidence that early negative appraisals statistically predict later PTSD in children (e.g. Ehlers, et al., 2003; Salmond et al., 2011). Ehlers and Clark (2000) suggest that negative appraisals contribute to posttraumatic stress symptoms, for example by contributing to situational fear or by leading to unhelpful coping strategies, preventing the discovery of new evidence which could shift these appraisals. Hence, from our findings in combination with those of other studies, it appears that the Ehlers and Clark model (2000) may be applicable to children as young as eight.

5.4.4 Parental anxiety and depression

The current study did not find evidence to support the prediction that parental levels of anxiety and depression are associated with early posttraumatic stress reactions in children. Parental anxiety and depression scores did not differ significantly between-groups nor did they significantly correlate with symptom severity.

Findings in the literature with regards to parental mental health difficulties are mixed. In partial support of the current findings, Salmond and colleagues (2011) found that parental scores on the HADS did not significantly differ between ASD and non-ASD groups in a sample of 50 children and adolescent emergency department attendees seen within one month of trauma. Nor did they statistically predict acute symptom severity as measured with the CPSS. This group did however find significant correlations between parental anxiety and depression scores and child posttraumatic stress symptom severity scores (Salmond, et al., 2011). Furthermore, parental

anxiety scores were found to statistically predict child-symptom severity at six months post-trauma (Salmond, 2008). In a recent meta-analysis, Morris and colleagues (2012) found a significant mean effect size for the association between parent depression and child posttraumatic stress symptom scores ($r = .32$). In addition, many studies do report a link between parental mental health difficulties and posttraumatic stress reactions (e.g. Kiliç, et al., 2003; McFarlane, 1987; Morris, Gabert-Quillen & Delahanty, 2012; Smith, et al., 2001).

Although not an explicit component of the original Ehlers and Clark (2000) model, some theorists suggest that parental mental health difficulties may play a role in the formation and maintenance of posttraumatic stress reactions in children (e.g. Kiliç, et al., 2003; McFarlane, 1987; Smith, et al., 2001). For example, it is possible that maternal mental health difficulties may in some instances negatively affect parenting skills meaning that they become a less available resource for their children (Smith, et al., 2001).

Possible explanations for the apparent discrepancy in findings are now discussed.

Firstly, many studies investigating the impact of parental mental health difficulties on children's reactions to trauma exposure have recruited from populations exposed to natural disasters or wars (e.g. Kiliç, et al., 2003; McFarlane, 1987; Smith, et al., 2001). There may be inherent differences in this type of trauma (e.g. the potential for individuals to experience displacement, multiple losses and prolonged exposure) that mean results may not generalisable to the current sample who experienced predominantly discrete time-limited events where they were the sole victim (Terr, 1991). Furthermore, these studies often report high rates of PTSD in parents (e.g. Smith, et al., 2001). Parental responses to trauma (e.g. fear of future events, intrusive imagery) are statistically predictive of children's reactions (e.g. McFarlane, 1987). Although parental PTSD symptoms were not formally assessed in the current study, the majority of parents had not witnessed their child's trauma, and those who had did not experience threat to their own lives or physical integrity. Differing sample characteristics mean direct comparison may not be meaningful.

Secondly, parents who participated in the current study were predominantly female (two men took part). Whilst some studies have found a relationship between maternal anxiety and depression scores and the severity of children's posttraumatic stress reactions (Morris et al., 2012), others have not. For example, Kiliç and colleagues (2003) found evidence for depression symptoms in fathers but not mothers to significantly relate to their children's PTSD symptoms following an earthquake in Turkey.

Thirdly, parents were given self-report questionnaires to complete whilst the interviewer met separately with their child. It is possible that they were not invested in disclosing their own mental health difficulties to the same degree that they were willing to discuss their children's difficulties. The inclusion of a diagnostic interview to assess parental health difficulties or access to medical records may have increased the accuracy of assessment, but was not practical in terms of time constraints and child supervision arrangements.

It is also possible that parental anxiety and depression do not relate to children's early reactions following trauma, but show a stronger relationship over time (c.f. Salmond, 2008). Or that other factors, not controlled for in this study influenced findings (Morris et al., 2012). For example, family functioning has been found to better statistically predict children's posttraumatic stress reactions than parental mental health difficulties (Trickey et al., 2012).

5.4.5 Prior emotional and behavioural difficulties

The current study found a significant difference between ASD and non-ASD groups with regard to children's prior emotional distress, but not other subscales or total scores on the Strengths and Difficulties Questionnaire. When symptom severity scores were analysed, we also found greater total SDQ scores, and more prior peer problems to relate to increased posttraumatic stress symptom severity scores.

Findings in the literature regarding prior emotional and behavioural difficulties have been somewhat mixed. For example, Salmond, et al., (2011) found the same pattern of between-group SDQ scores in a similar population of child and adolescent trauma survivors. However, this study did not find total or previous peer problems to

relate to symptom severity scores (Salmond, et al., 2011). Furthermore, Meiser-Stedman, et al., (2007a) did not find a significant difference in prior mental health difficulties between ASD and non-ASD groups.

Differences in findings may relate in part to the way in which prior mental health difficulties are assessed. For example, Meiser-Stedman, et al., (2007a) collected information from the ED records and participant interviews, rather than with questionnaire measures (Meiser-Stedman, et al., 2007a). In our study, we also found no significant difference between ASD and non-ASD groups on the demographic index of 'prior mental health difficulties' (included as an interview question with participating families). Furthermore, parent-child agreement with regard to reporting of ASD and other psychopathologies between two and four weeks post-trauma may be poor (Meiser-Stedman, et al., 2007b). Additionally anecdotal evidence from our child-interviews would suggest that some children had experienced prior emotional and interpersonal difficulties of which their parents were not aware. Furthermore, while generally found to be a valid and reliable tool (Goodman, 2001); the SDQ has not been widely validated in Western BME groups (Vostanis, 2006) who contributed to a large proportion of our sample. Finally, it was found to have poor internal consistency in our sample (Cronbach's $\alpha = .44$), suggesting that the measure was not an accurate representation of children's prior emotional and behavioural functioning in the present sample.

There is also some evidence that peri-traumatic factors may mediate the influence of pre-traumatic behaviour problems (Brewin, Andrews, & Valentine, 2000). For example, Aaron and colleagues (1999) found that children's early responses to trauma may be mediated by peri-traumatic fear (Aaron, et al., 1999). Additionally, Trickey, et al. (2012) found that the effect of pre-traumatic psychological problems was modest in comparison to peri- and post- traumatic factors in statistically predicting PTSD in children.

Cognitive theories implicate a role for pre-existing emotional difficulties in relation to children's early responses to trauma. The Ehlers and Clark (2000) model highlights the contribution of individuals' previous experiences to their responses to trauma. For example, the event may be seen by some as confirmation of pre-existing

negative beliefs (as are typically found in other emotional disorders such as depression). Meiser-Stedman and colleagues (2002) further discuss the role of pre-traumatic characteristics in predicting children's early responses to trauma. They suggest that in addition to the presence of maladaptive cognitive styles, pre-existing levels of elevated arousal may lead to more emotion-laden memories being laid down during the trauma (Meiser-Stedman, et al., 2002).

In summary, findings from the present study partially support the assertions of cognitive models with regard to pre-existing emotional and behavioural problems. However, these theories do not explain the failure in the current study to find a relationship between other variables nor the inconsistent findings in the literature. The way in which prior mental health difficulties and subclinical emotional and behavioural difficulties are assessed, in addition to the mediating role of peri- and posttraumatic factors, may in part account for these findings.

5.5 Hypothesis 3

There will be a relationship between Overgeneral Autobiographical memory and depression; and trauma.

Findings with regards to OGM and depression severity were mixed. Initial comparisons revealed significant correlations between memory specificity and depression severity for 'total' specific memories and positively valenced cue words, but not for negatively valenced cues. However, when gender was controlled for, the effect remained significant for specific memories generated in response to positive cue words only. We discuss these findings in relation to other experimental findings regarding depression and OGM; and posttraumatic stress disorder and OGM, and then summarise the implications of our findings with respect to theoretical models of OGM.

Due to the cross-sectional nature of the present study, and limited number of comparable studies, our results should be interpreted with caution. Whilst the majority of studies in adults find a relationship between OGM and depression and/or trauma, few have examined the phenomenon with respect to early responses to trauma, and findings in younger populations are sparse and inconsistent.

5.5.1 Overgeneral autobiographical memory and depression

Broadly, our finding that those with depression may produce fewer specific memories in response to positive cue words is not wholly inconsistent with findings in adults. The majority of adult studies report decreased memory specificity in those with depression compared to controls (Williams, et al., 2007). Although these studies have not always been in traumatised samples, in line with our results, a recent study by Kleim and Ehlers (2008) found that at two weeks post-trauma those with Major Depressive Disorder retrieved fewer specific autobiographical memories on the AMT than those with assault-related phobias and those without depression or ASD. There is also some evidence that differences in overgeneral responses may reflect greater number of omissions in depressed individuals (Kleim & Ehlers, 2008). This may in part explain the absence of significant findings with respect to overgeneral responses which did not include omissions (see Griffith, et al., 2012a for a discussion).

There is less agreement about the nature of autobiographical memories in relation to depression in trauma-exposed children and young people. Some studies broadly support the findings that those with depression who have experienced traumatic events recall fewer specific memories compared to those without, others do not. For example, Johnson and colleagues (2005) found in a sample of adolescent victims of sexual abuse, depression was associated with higher overall rates of overgeneral memories. Valentino and colleagues (2012) found that in a sample of psychiatric inpatients (aged seven to 17 years) there was a significant interaction between depression and abuse histories. Those with low levels of depressive symptoms but no history of abuse generated fewer overgeneral memories than those with a history of abuse and low levels of depressive symptoms. Conversely, those with high levels of depressive symptoms but no history of abuse generated more overgeneral memories than those with a history of abuse. Although PTSD symptom severity was not assessed, covarying for PTSD diagnosis did not affect results (Valentino, et al., 2012). De Decker and colleagues (2003) did not find AMT specificity to correlate with depression severity in a sample of adolescent inpatients (with or without trauma histories), and Kuyken (2006) and colleagues found that those with both depression

and trauma history generated more *specific* memories than those with depression but no history of trauma.

With respect to cue-valence, again, there is inconsistency in the literature, but some evidence that, in line with our findings, OGM in relation to depression may be particularly pronounced with respect to positively valenced cue words. For example, in their meta-analysis of depressed individuals versus controls, Williams and colleagues (2007) found between-group differences in effect size were greater with respect to overgenerality to positive cues (0.91) than for overgenerality to negative cues (0.48). Kleim and Ehlers (2008) also noted that in comparison to recently trauma-exposed non-depressed participants, those with depression produced more omissions in response to positive cues. In children and adolescents, Stokes and colleagues (2004) found depression was significantly correlated with positive latency in a sample of female adolescent burn victims. Similarly, Johnson, et al., (2005) found that for victims of sexual abuse, the relationship between OGM and depression was stronger for positive and neutral cues compared to negative cues. Drummond, et al., (2006) also found that dysphoric children retrieved fewer specific memories to positive cues than non-dysphoric children. However, a history of trauma was an explicit exclusion criteria in this study (Drummond, et al., 2006). Not all studies in children have found cue valence significant (e.g. Kuyken, et al., 2006; Vrielynck, et al., 2007).

There may be a number of explanations for these inconsistencies in findings. For example, the majority enquire about limited trauma types (e.g. Johnson, et al., 2005; Stokes, et al., 2004), fail to control for other potential traumatic stressors (e.g. Johnson, et al., 2005; Valentino, et al., 2006), time since the traumatic event (e.g. Stokes, et al., 2004), and/or severity of posttraumatic stress symptomatology in children (e.g. Valentino, et al., 2012), and sometimes use highly modified versions of the AMT (e.g. Heron, et al., 2013; Johnson, et al., 2005). Hence, findings may not be directly comparable to the results of our study. Additionally, it is possible that our inclusion of a symptom severity measure, rather than a diagnostic interview to assess depression in our sample may have influenced results, as there is some evidence in the adult literature that symptom severity measures may not detect significant OGM effects in relation to depression (Williams, et al., 2007). It is also

possible that our findings reflect the contribution of an un-measured variable, for example, the degree of background noise and distraction present in some cases was not possible to control for. Furthermore we did not control for executive functioning (cf Williams, et al., 2007), although not all studies have found this to influence children's OGM performance (e.g. Kuyukun et al., 2006; De Decker et al., 2003). We also found evidence that rumination was highly statistically predictive of depression symptom severity in our sample, and explained some variance in posttraumatic stress symptom severity. Rumination is important in relation to OGM (Williams, et al., 2007). Individuals prone to rumination, for example those with depression, by definition think repetitively about depressive symptoms, their causes and consequences, in a passive way (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Thus, emotion-related conceptual self-representations are likely to be highly active and accessible for individuals who ruminate, and hence more easily triggered by emotional cues, such as words used in the AMT (Williams, et al., 2007). Repetition of intermediate memories through rumination means these memories will become more elaborated and more easily accessible in future search attempts (Williams, et al., 2007). Although purely speculative at this stage, it is also plausible that OGM was weakly related to depression and ASD in the current study because OGM was measured soon after the trauma, and that it may take time for the overgeneral way of responding to fully develop.

5.5.2 Overgeneral autobiographical memory and acute stress disorder

We found that those in the 'extended ASD' group were more likely to retrieve overgeneral memories in response to positive cue words than non-ASD participants. Interestingly, responses latencies for specific positive cue-word answers were significantly faster in the ASD group. No other test variable was found to significantly differ between groups. No significant relationship between OGM and posttraumatic stress symptom severity was found.

Few studies in the adult literature examine OGM in relation to early reactions to trauma. However, there is some evidence from those which do that is consistent with our findings. For example, Harvey, et al., (1998) found those with ASD reported fewer specific memories to positive cue words compared to controls, findings for negative cue words were not significant. Similarly, Kangas, Henry, and Bryant

(2005) and Kleim and Ehlers (2008) found participants with ASD retrieved more overgeneral memories than those without, although neither found evidence for a valence effect.

Again, findings in children are mixed, and no study has directly assessed OGM in relation to ASD, and again, findings widely vary. For example, in their study of OGM in inpatient adolescents with a self-reported history of trauma, De Decker and colleagues (2003) found higher levels of trauma were associated with reduced autobiographical memory specificity, and that this was mainly attributable to positive cue word responses. PTSD symptom severity was not assessed, however controlling for PTSD diagnosis did not influence results (De Decker, et al., 2003). Stokes, et al. (2004) found that girls who had suffered burn injuries were more likely to recall fewer specific and more overgeneral memories than a non-burn injured control group (matched on age, gender and verbal fluency). Furthermore, higher posttraumatic avoidance (but not intrusion) scores were associated with the recall of fewer specific memories in response to task words. However, this group did not find an effect of cue valence (Stokes, et al., 2004). These studies were subject to the same limitations described above which make them difficult to compare directly with our findings.

Few studies have explored response latencies, and findings are inconsistent (van Vreeswijk & de Wilde, 2004). Harvey and colleagues (1998) found no significant difference between response latency and ASD in adults. In contrast, Kangas and her colleagues (2005) found those with ASD responded significantly more slowly than those without, and that positive cue word responses were retrieved significantly more slowly than negative cues. Stokes, et al (2004) found adolescents in the burn group generated responded significantly more slowly than controls.

5.5.3 Summary of memory findings in relation to theoretical models

Despite our failure to find a relationship between overgeneral memories and posttraumatic stress reactions, our finding that those with higher levels of depression and those with ASD retrieve fewer specific memories in response to positive cue words are consistent with prominent theoretical models of autobiographical memories (e.g. Williams, et al., 2007). For example, those with depression may be

more susceptible to rumination at the general level of the memory hierarchy and hence less likely to access specific memories (Williams, et al., 2007). Furthermore, those in whom specific events provoke strong negative affective disturbance, such as those with posttraumatic stress symptomatology, are predicted by these models to retrieve fewer specific memories than those without, in an attempt to avoid such emotions (Conway & Pleydell-Pearce, 2000; Williams, et al., 2007).

The finding that participants were less likely to generate specific memories in response to positive cue words is interesting. Schönfeld & Ehlers (2006) found that OGM was related to perceived permanent change (indicated by PTCI-PC scores). The nature of the relationship between appraisals and OGM was not directly explored in this study. However, we did find a highly significant relationship between negative appraisals and both ASD and symptoms of depression in our sample. Remaining 'caught' at more general levels of the memory hierarchy is likely to increase the probability that general rather than specific memories are accessed during subsequent generative retrieval searches, and this may be more likely to occur for those with negative self-schemas (Williams, et al., 2007). Failing to access specific memories of the traumatic event may prevent elaboration and reappraisal of the trauma memory (Ehlers & Clark, 2000). Furthermore, failure to access specific positive memories, for example of life prior to the trauma, may make it difficult to access evidence that might help challenge the belief that one has suffered 'permanent and disturbing change' as a result of the trauma (Kleim & Ehlers, 2008). Of course, cue word valence would not necessarily equate to response valence, for example, mood-incongruent words may trigger negative memories (Williams, et al., 2007). However, Kangas and colleagues (2005) found that in adults, a decline over time in positively valenced memories in response to AMT words was associated with increased feelings of hopelessness and helplessness in adult cancer survivors (see 'Implications' section for further discussion).

In summary, it is difficult to interpret our current findings, particularly in the context of conflicting findings in the child and adolescent literature. Indeed, to the best of our knowledge, no other study in children has examined specifically OGM in relation to depression and early posttraumatic stress reactions. However, our findings are reconcilable with findings in the adult literature, and failure to find significant effects

on all AMT domains may be an artefact of the small sample size and hence reduced power to detect an effect of OGM, and/or that symptom severity rather than diagnostic category was used to examine depression.

Given the limited findings with regards to OGM and posttraumatic symptom severity, and the opportunity afforded by our dataset to explore further the relationship between OGM and theoretically relevant measures (e.g. avoidance, rumination, appraisals, pre-existing difficulties) we ran an exploratory correlation analyses including OGM and theoretically relevant variables to further elucidate this relationship (see Appendices Q and R). Contrary to predictions of an affect avoidance explanation for OGM, avoidance did not significantly correlate with AMT ‘specific’ or ‘overgeneral’ subscales, and those with higher avoidance scores responded more quickly with specific answers to positive cue words than those without (see Appendix Q). In contrast, and more in line with the ‘capture and rumination’ aspect of the CaR-FA-X model (Williams, et al., 2007), more negative appraisals and rumination correlated significantly with more overgeneral and fewer specific memories in response to positive cue words. Interestingly, prior emotional or behavioural difficulties did not affect children’s scores, but higher levels of parental anxiety were significantly correlated with fewer specific and more overgeneral memories in response to ‘total’ and ‘negative’ AMT cue words, suggesting that family factors may play a role in determining children’s memory specificity (c.f. Valentino, 2011). However, when gender was controlled for, no finding remained significant (see Appendix R). Hence these results must be interpreted with caution.

Taken together, these results add to a growing body of research suggesting the relationship between posttraumatic stress reactions and depression in children is complex, and findings may be sensitive to methodological differences and sample characteristics. The current study raises a number of questions regarding the nature of OGM in this sample in relation to prominent theoretical models of both OGM and reactions to trauma (see ‘Implications’ section for further discussion).

5.6 Hypothesis 4

OGM will statistically predict depression and posttraumatic stress symptom severity in our sample over and above established statistical predictors of posttraumatic stress disorders.

Our study was cross-sectional in nature, therefore, assertions with regard to the contribution of variables in causing or maintaining symptoms cannot be made from the present data alone. We were able to conduct statistical analysis in order to investigate hypothesised relationships between variables. Hence, results regarding ‘predictor variables’ must be interpreted with caution as they represent statistical relationships and may not necessarily reflect ‘real world’ predictors.

Results from three step-wise regression models revealed interesting results with respect to statistical predictors of posttraumatic stress symptom severity. Both posttraumatic avoidance and children’s negative appraisals accounted for a significant amount of the variance in our sample. This finding held-up when steps were taken to ensure that results were not an artefact of the overlap in avoidance symptoms and children’s scores on the posttraumatic avoidance scale. However, rumination was also found to explain a small amount of the variance in scores when either the posttraumatic avoidance scale or the avoidance symptom cluster were excluded from analysis. Rumination in response to affective disturbance was found to be the best statistical predictors depression in our sample. Appraisals also enhanced the predictive power of the depression model, but accounted for less unique variance. In contrast to our findings for posttraumatic stress symptoms, children’s posttraumatic avoidance did not significantly predict depression scores. Unsurprisingly, given our previous findings, performance on the autobiographical memory test, parental mental health difficulties and children’s prior emotional and behavioural difficulties did not significantly predict depression or posttraumatic stress symptom severity scores.

Our findings with regard to statistical predictors of early reactions to trauma are in line with other studies. For example, in a recent study Salmond and colleagues (2011) also found cPTCI to be a good statistical predictor of CPSS scores in children seen shortly after a traumatic event. In combination with a measure of the

disorganisation of trauma narratives, they found children's appraisals predicted 70.9% of the variance of CPSS scores measured two to four weeks post-trauma (Salmond et al., 2011). Salmon, Sinclair and Bryant (2007) also found negative appraisals be a good statistical predictor of children's acute stress reactions. Furthermore, Stallard and Smith (2007) ascertained appraisals, coping styles (including rumination), and thought suppression and distraction (which may be conceptualised as controlled avoidance strategies) statistically predicted PTSD in children eight months after a road traffic accident. There is also that rumination following traumatic events predicts posttraumatic depression and ASD symptoms in children (Ehlers et al., 2003; Felton, et al., 2013).

Our results indicate that different cognitive processes may be better statistical predictors of depression compared to posttraumatic stress reactions and vice versa, are theoretically plausible with regard to potential 'real world' relationships. Models of depression suggest that, when triggered, negative core beliefs about self, others and the world inform the way individuals appraise current circumstances (c.f. Beck, 1967). Furthermore, rumination is strongly implicated in models of depression, for instance it may maintain symptoms by impairing problem solving and enhancing negative thinking (Nolen-Hoeksema, et al., 2008). Posttraumatic avoidance strategies are not central to such theories. In contrast, given that a sense of current threat is purported to be central to individuals' posttraumatic stress symptomatology (c.f. Ehlers & Clark, 2000), it is plausible that attempts to actively avoid reminders of the trauma and negative appraisals (e.g. 'anyone could hurt me'; 'I have to watch out for danger all the time') might better predict posttraumatic stress symptoms than rumination in response to affective disturbance. Indeed, emerging evidence from research in adults suggests that whilst there is some overlap, there is also a degree of specificity with regards to maintaining cognitive factors of depression and PTSD following traumatic events (e.g. Ehling, et al., 2006; Kleim, et al., 2012).

It is of note that Kleim and colleagues (2012) found trauma-specific rumination to be a better statistical predictor of PTSD symptoms than of depression. Although these findings appear to contradict the results of the present study, it should be noted that the current study used a measure of rumination in response to affective disturbance (feeling sad or afraid) (c.f. Meiser-Stedman, et al., 2007). In contrast, Kleim's

research group measured trauma-specific rumination. Furthermore, both studies found rumination measures could significantly account for variance in both depression and symptom severity scores.

5.7 Limitations

The current study has a number of limitations with regard to recruitment strategy, sample characteristics, and methodological factors. These are now discussed in turn.

5.7.1 Recruitment procedure

Our recruitment procedure had several limitations. Firstly, our study was unusual in comparison to many other studies in that we did not restrict our inclusion criteria to specific trauma types (e.g. assault or motor vehicle accident victims (c.f. Meiser-Stedman, et al., 2007a; 2009; Salmond, et al., 2011)). This may mean our results are not directly comparable to others'. However we deliberately broadened our inclusion as, given the heterogonous nature of traumatic stressors, we believed this would increase the ecological validity of our findings. Furthermore, that previous findings with regard to cognitive predictors were replicated in a wider range of traumatic events adds weight to the theories implicating their role in the formation and maintenance of posttraumatic stress reactions.

Secondly, our use of the DSM-IV definition of a 'traumatic event' in the current study specified participants must meet both parts of criterion A (see Figure 1). Trauma is commonly classified in this way in studies of posttraumatic stress reactions (e.g. Kuyuken, et al., 2006; Ellis, et al., 2009). However, there is evidence that posttraumatic stress reactions may develop in the absence of 'fear, helplessness or horror' (criterion A2), and A2 reactions are weakly predictive of later PTSD (Friedman, et al., 2011; Scheeringer, et al., 2011). The definition of trauma encompassed by criterion A1 alone is broad, and may even include experiences related to being hospital (e.g. witnessing others who are seriously injured) (Dow, Kenardy, Long, & Le Brocque, 2012). It was beyond the scope of the current study to contact all children entering the emergency department during the recruitment period, especially as, for reasons noted above, we did not wish to restrict our inclusion criteria to specific patient groups.

Thirdly, active avoidance strategies may have influenced some individuals' decision to take part (Salmond et al., 2011). Hence, our study may be an underestimate of the true prevalence of posttraumatic stress reactions. However, this does not undermine our findings, and suggests in some cases, they may even be an underestimate of the 'true' contribution of predictor variables (for example with regard to the predictive power of avoidance).

5.7.2 Sample Characteristics

Some characteristics of the present sample may present difficulties when interpreting results. These are now discussed. Firstly, as has been found in prior research (e.g. Copeland, et al., 2007); the experience of multiple traumas was common in our sample. Furthermore for a significant minority the current event was not felt to be the most frightening. Diagnostic interviews and questionnaires were completed with their most recent trauma in mind. This has several disadvantages. For example early reactions to prior traumatic events may have warranted an ASD diagnosis which resolved with time, but thinking styles may have persisted continuing to exert an influence (e.g. on AMT performance). Many young people have experienced multiple traumatic events, and clinicians are likely to treat such individuals in addition to those who have experienced one discrete event (Smith, et al., 2013). Thus, to exclude individuals with a history of trauma may not only have decreased the current sample size significantly, but also potentially have limited the ecological validity of findings.

Secondly, a number of participants also reported experiencing prior mental health difficulties. Furthermore, it is possible that some individuals had experienced prior mental health difficulties, but had not sought help and/or not wished to disclose these to the researcher. It is possible that pre-existing difficulties may have influenced our results. For example, prior depression and dysphoria may have influenced AMT performance (Williams, 2007), and scores on our measure of rumination (Nolen-Hoeksema, et al., 2008). Again, due to our small sample size, to exclude these individuals may have led to our study being underpowered, and the inclusion of such individuals does not undermine our finding that cognitive processes clearly link to posttraumatic stress reactions and depression.

Finally, our sample did not include some significant trauma types (e.g. war, natural disasters, sexual assault). Hence, caution would be needed when interpreting our findings with respect to these groups. However, as discussed, our sample is more inclusive than many with respect to trauma types, and the lack of these groups does not undermine the established findings in our population.

5.7.3 Methodological issues

The employment of a cross-sectional design presents several limitations. Firstly, it is not possible to ascertain whether cognitive processes develop in response to traumatic events, or are pre-existing vulnerability factors for the formation and maintenance of posttraumatic stress reactions. Secondly, the absence of follow-up data prevents us from exploring further the relative contribution of predictor variables as maintaining factors. Hence, predictor variables could be established only in the context of statistical analysis, and may not equate to ‘real world’ predictors of posttraumatic stress disorder and depression. However, it is an inherent weakness of most studies of traumatic events that pre-traumatic cognitive functioning may only be assessed prospectively (Nolen-Hoeksema & Morrow, 1991), rather than a unique design flaw in our study. Furthermore, although beyond the scope of the present study, a six month follow-up to the study is currently being collected which we hope will shed further light on some of the underlying mechanisms influencing children’s responses to trauma.

In the current study, a child-interview only was used to establish the presence or absence of ASD/PTSD. Silverman and colleagues report that the ADIS-C may be used alone as a reliable measure of anxiety disorders (Silverman, Saavedra, & Pina, 2001). However, the addition of a parent-interview may have been helpful in elucidating diagnosis, particularly with respect to the presence/absence of observable behavioural symptoms (such as separation anxiety and bedwetting), that children may have found difficult to disclose (Comer & Kendall, 2004). However, there is generally poor parent-child agreement in assessment of anxiety disorders (e.g. Choudhury, Pimentel, & Kendall, 2003; Meiser-Stedman, et al., 2007; Rapee et al., 1994) and some evidence that parents may underreport children’s symptoms following trauma (Meiser-Stedman, et al., 2007; Vogel & Vernberg, 1993), particularly in the first few weeks following traumatic events (Meiser-Stedman, et al.,

2007; Schreier, Ladakakos, Morabito, Chapman, & Knudson, 2005). Recent evidence suggests that direct child rather than parent interviews may more accurately measure children's distress and their early responses to trauma (Meiser-Stedman, et al., 2007). A follow-up interview (e.g. six months post-trauma) interviewing both child and parent may have provided a more accurate reflection of the 'true' prevalence of PTSD in our sample (Meiser-Stedman, et al., 2007). However, given findings that child interviews may yield a more accurate description of symptoms soon after traumatic events, in addition to practical and ethical considerations (e.g. potentially having to leave young children unsupervised whilst parent interviews were conducted), the current study therefore used the ADIS-C only to diagnoses ASD.

Additionally, we did not include a formal diagnostic assessment of depression. As previously noted, the use of within rather than between-group depression severity scores may have influenced our findings with regards to OGM (Henderson, Hargreaves, et al., 2002; Kuyken & Brewin, 1995). Furthermore, it remains possible that our findings are due to other, unmeasured, factors. For example, we did not assess other responses to trauma (e.g. specific phobia, separation anxiety, and panic). However, we did not wish to overburden participants, hence chose to use a diagnostic interview only for ASDPTSD as this is the most frequently examined early response to stress in children, and the most relevant to our exploration of OGM variables.

Self-report questionnaires were found to highly correlate with one another, see Appendix O). This is problematic for several reasons; findings may be an artefact of response style, for example extreme responding; questionnaires may be assessing similar things (e.g. posttraumatic avoidance scale and avoidance subscale of the CPSS); and when performing regression analyses, findings may be compromised by multi-collinearity. We used a step-wise linear regression in order to reduce the impact of multi-collinearity. Furthermore, PAS and cPTCI total scores, and only one HADS subtest were entered in order to reduce the impact of high correlations between measures. It should also be noted that when the CPSS avoidance subscale was removed from our regression model, PAS remained a good predictor

of variance, suggesting our findings were not simply due to these two questionnaires measuring the same thing.

Finally, the current methodology is limited predominantly to consideration of cognitive factors in relation to children's early responses to trauma. However, it is possible and plausible that unmeasured developmental factors may also have influenced our findings and are relevant when applying adult cognitive models to children. For example, there is growing evidence that changes in the 'social brain', relating to social cognition, are associated with functional and structural changes in the brain, prominent in adolescence (Blakemore, 2008). In general, individuals' ability to understand the intentions and emotions of others improves during adolescence, and rates of mental health difficulties, antisocial and risky behaviours increase (Blakemore, 2008). This suggests that developmental differences between younger children and older adolescents may have influenced the results of our study (for example, relationships between cognitive variables and posttraumatic stress reactions may have been more pronounced in older children). Furthermore, in her 'Developmental Psychopathology Model of OGM', Kirstin Valentino (2011) highlights the importance of developmental differences in emotion regulation, mental representational models, executive functioning and neurobiology when considering the application of adult cognitive models to children. These may differ according to an individuals' developmental stage (Valentino, 2011).

It was beyond the scope of the current study to measure brain functioning in our sample, and although chronological age and IQ (as an imperfect proxy for developmental age) were controlled for in OGM analysis, these were not controlled for when exploring other variables. It is plausible for example, that differences in participant's ability to understand the emotions of others may influence their appraisals of themselves, others and the world, and is an important consideration for future research. It should however be noted that there is growing evidence of the utility of cognitive-behavioural interventions in treating child and adolescent mental health difficulties such as ASD, PTSD (e.g. Berkowitz et al., 2011; Nixon, 2012, Nixon, Sterk, & Pearce, 2012), and depression (Connor-Smith & Weisz, 2003). Hence potential developmental influences do not necessarily undermine our findings with regard to the relationship between cognitive variables and posttraumatic stress

reactions, but future research should seek to explore these relationships further. For example, increased therapist flexibility and adaptation of treatments (e.g. Chu & Kendall, 2009), assessment of cognitive ability (Miller & Feeny, 2003), and emotional recognition training have been identified as potential additional components prior to commencing CBT in younger populations (Stallard, 2008).

5.8 Implications and directions for future research

To the best of our knowledge, our study is the first to explore OGM in relation to early responses to trauma in children and adolescents. Our findings raise a number of interesting questions for future research, and highlight implications for clinical practise. These are now discussed.

5.8.1 Theoretical Implications

Firstly, our findings with regard to the statistical predictive power of rumination, appraisals and avoidance are theoretically relevant. Not only do they add to a growing body of literature implicating the applicability of the Ehlers & Clark (2000) model of PTSD in relation to children's early responses to trauma, but also, as discussed, suggest that different cognitive pathways may underlie the development of depression and posttraumatic stress disorder. Future research might include a fuller diagnostic interview to assess other co-morbidities, and use model-specific predictor variables in a longitudinal design (c.f. Kleim, et al., 2012) to further explore the relative contributions of these factors in maintaining PTSD, depressive, and/or other posttraumatic stress reactions. Additionally, our findings in relation to other work suggest that the type of rumination measured may be important. Hence, this would be interesting to investigate further, for example by including both measures of rumination in response to affective disturbance and rumination in response to the trauma and exploring their relative contributions in predicting PTSD and/or depressive symptoms.

Secondly, as the first to study OGM in relation to children's early responses to trauma, the primary aim of our study was not to directly test aspects of prominent models of OGM, but rather explore the relationship between OGM and early reactions to traumatic events. Some of our findings are reconcilable with theoretical models of OGM, but require further replication. We suggest that future studies might

include a diagnostic assessment of depression, a larger sample size, and follow-up AMT data in order to help elucidate whether findings are an artefact of methodological limitations, or, for example, because decreased memory specificity is a pattern of activation established with reinforcement over time. Future research might also include measures of executive functioning. Mediation analysis could then enable the relative contribution of rumination, functioning avoidance and impaired executive functioning as implicated by the CaR-FA-X model (Williams, et al., 2007) to be evaluated. This would also allow researchers to test predictions with regards to differences in dominant processes with respect to ASD and depression (c.f. Dalgleish, et al., 2007; 2008; Sumner, et al., 2012). For example, our finding that rumination is a better statistical predictor of depression and that avoidance statistically better predicts PTSD symptom severity suggests that these processes may contribute more or less to OGM depending on diagnosis.

A third implication of our findings regards the similarities found between ASD, 'extended ASD', 'early PTSD' and PTSD. These are important given growing concerns with regards to the utility of current diagnostic criteria (e.g. Scheeringa, et al., 2011). Our results add to a relatively well-established evidence base that the 'dissociative symptoms' criteria emphasised in ASD but not PTSD diagnosis may add little in aiding the successful identification of those with significantly impairing or distressing early reactions to trauma (e.g. Bryant, et al., 2011; Meiser-Stedman et al., 2007a). Furthermore, although full ASD and PTSD diagnoses both require the presence of six symptoms in addition to clinically significant distress or impairment, distribution across symptom clusters differs somewhat, for example, fewer arousal symptoms are required for ASD (see Figure 1). Our predictor variables appeared to relate slightly better to symptom severity scores than diagnostic categories. Taken together with findings from other studies suggesting that fewer symptoms from any cluster may be more useful in detecting clinically relevant cases (e.g. Bryant, et al., 2007; Kassam-Adams, et al., 2012; Meiser-Stedman, et al., 2005), and evidence that predictor variables may relate better to particular symptom clusters (Meiser-Stedman, et al., 2007a), we suggest that further exploration of the relationship between hypothesised predictor variables and symptom clusters may be helpful.

There were some inconsistencies between present and prior findings with regard to parent mental health difficulties and children's pre-traumatic emotional and behavioural problems. The reason for these discrepancies remains unclear, and warrant research. For example, it is possible that parental mental health difficulties influence children's outcomes in some but not all trauma populations, that our findings are an artefact of a reluctance to report existing mental health difficulties, or that the relationship between parental mental health difficulties and their children's symptoms becomes stronger over time. Future studies might assess the mental health status of both parents, include more objective measures of prior and current mental health difficulties in children and their parents (e.g. through access to medical records), and further explore the role of family functioning in an attempt to elucidate these relationships further.

5.8.2 Clinical Implications

This was a small-scale exploratory study; clearly clinical implications must therefore remain tentative at this stage. Furthermore, findings may not be generalisable to younger children and other trauma types not present in our sample. However, our study adds to a growing body of research implicating the important role of rumination, appraisals and avoidance in relation to children's responses to trauma (c.f. Meiser-Stedman, 2002). Recent findings suggest that cognitive and cognitive behavioural interventions be helpful in the early aftermath of traumatic experiences (e.g. Berkowitz et al., 2011; Nixon, 2012, Nixon, Sterk, & Pearce, 2012). With this in mind, we suggest that the possible role of avoidance, appraisals, and (to a lesser extent) rumination, in predicting acute stress reactions; and rumination and appraisals in predicting depression, implicates these processes as potential targets for assessment and treatment following traumatic events. For example, the inclusion of brief self-report screening questionnaires similar to those presented here may aid clinicians in determining which potentially maladaptive cognitive processes may be present soon after traumatic events, and which may be targeted if necessary with an intervention. For example, for individuals with high levels of rumination, clinicians might pay particular attention to mood symptoms, and may choose for example, to target rumination specifically in therapy.

OGM was not found to statistically predict symptom severity, and findings with regard to ASD diagnosis were weak. We suggest that it is therefore not strongly implicated as a target for assessment or intervention following traumatic events in childhood. However, specificity training is possible, and may help reduce depression (e.g. Raes, Williams, & Hermans, 2009). Hence, there may be some viability in helping train individuals, particularly with regard to remembering specific positive events which may aid recovery, for example, by shifting negative appraisals of self, others and the world.

A relatively new measure of posttraumatic avoidance (the PAS), not previously tested in children was trialled in our study. Initial findings are promising. Although further tests of reliability and validity of the questionnaire are clearly required, the measure was reported to be found acceptable and comprehensible by children, and showed good internal consistency (Cronbach's $\alpha = .91$). Given the clear statistical relationship with posttraumatic stress reactions and statistical predictive validity of the PAS established in the present study, we suggest that it has promise as a brief and easily accessible clinical tool. Controlled avoidance, implicated in this and a prior study using the PAS (Andrews, et al., 2013), is amenable to change. Hence, our findings add weight to existing treatment protocols which implicate posttraumatic avoidance is a useful target (e.g. via exposure) for therapeutic intervention (e.g. Deblinger & Heflin, 1996; Nixon, et al., 2012; Smith, et al., 2013).

5.8.3 Summary

Early reactions to trauma are distressing and disabling for a significant minority of children and young people. Furthermore, they are predictive of longer-term difficulties, and there is some evidence that they are amenable to psychological interventions. The present study provides not only further insight into the nature of such reactions; it is also the first to investigate the overgeneral autobiographical memory phenomenon in this population. Findings regarding autobiographical memory specificity were weaker in our study and are not good statistical predictors outcomes above and beyond that which may be predicted by established cognitive factors. We found that rumination, and, to a lesser extent negative appraisals, are statistically significant predictors of posttraumatic depression severity, in contrast, avoidance and appraisals are statistically predictive of posttraumatic stress

symptomatology. Our results suggest a number of promising directions for future research with regard to both theoretical understanding and clinical assessment of, and intervention with those in distress.

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Appendix A

Letter of ethical approval

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdaforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
(None)		
Advertisement	1	05 December 2011
Advertisement	2	11 November 2011
Covering Letter		13 January 2012
Covering Letter		26 November 2011
Covering Letter		19 February 2012
Evidence of insurance or indemnity		02 August 2011
Evidence of insurance or indemnity		01 July 2011
Evidence of insurance or indemnity		08 August 2011
Evidence of insurance or indemnity		01 August 2011
Evidence of insurance or indemnity		15 August 2011
GP/Consultant Information Sheets	1	26 November 2011
GP/Consultant Information Sheets	1	26 November 2011
Investigator CV		26 November 2011
Letter from Sponsor		25 November 2011
Letter from Statistician		01 November 2011
Letter of invitation to participant	1	26 November 2011
Letter of invitation to participant	1	26 November 2011
Other: Supervisor Patrick Smith's CV		25 November 2011
Other: Letter of invitation to principal caregiver 8-16	1	11 November 2011
Other: Letter of invitation to principal caregiver & FISTS questionnaire into 8-16	1	11 November 2011
Other: Letter of invitation to principal caregiver 16-18	1	11 November 2011
Other: Letter of invitation to principal caregiver & FISTS questionnaire into 16-18	1	11 November 2011
Participant Consent Form: contact school 8-16	1	11 November 2011
Participant Consent Form: contact school 16-18	1	11 November 2011
Participant Consent Form: Assent (8-15)	1	13 January 2012
Participant Consent Form: Parent (8-15)	2	13 January 2012
Participant Consent Form: (16-18)	2	13 January 2012



NRES Committee London - City Road & Hampstead

Bristol Research Ethics Centre
Level 3, Block B
Whitlairs
Lewins Mead
Bristol
BS1 2NT

Telephone: 0117 342 1339
Facsimile: 0117 342 0445

11 April 2012

Miss Harriet Ferner
Addiction Sciences Building
4 Windsor Walk, ASB PO 78
London
SE5 8AF

Dear Miss Ferner

Study title: Over-general autobiographical memory in children and adolescents exposed to trauma
REC reference: 11/LO/2044

Thank you for your letter of 27 February 2012, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Appendix A - Letter of ethical approval (continued)

Participant Consent Form: Parent	1	13 January 20
Participant Information Sheet: Child 8-12 info sheet & FISTS questionnaire info	1	11 November 20
Participant Information Sheet: Child 13-15 info sheet	1	11 November 20
Participant Information Sheet: Info sheet 13-15 & FISTS questionnaire info	1	11 November 20
Participant Information Sheet: 16-18 info sheet & FISTS questionnaire info	1	11 November 20
Participant Information Sheet: Young Person (16-18)	2	13 January 20
Participant Information Sheet: Child (8-11)	2	13 January 20
Participant Information Sheet: Child (12-15)	2	13 January 20
Participant Information Sheet: Parent	1	19 February 20
Protocol	2	13 January 20
Questionnaire: validated questionnaire - Autobiographical Memory Test		
Questionnaire: non validated - FISTS questionnaire	1	26 November 20
Questionnaire: validated - Summary of violence assessment tool	1	26 November 20
Questionnaire: non-validated Child Cognitive Avoidance	1	26 November 20
Questionnaire: Validated - Anxiety Disorders Interview Schedule (ADIS)		
Questionnaire: Validated - Life Events Questionnaire		
REC application		25 November 20
Referees or other scientific critique report		26 November 20
Response to Request for Further Information		27 February 20
Summary/Synopsis	1	26 November 20

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

11/LO/2044 Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Dr David Slovick
Chair

Email: christinehobson@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Ms. Jenny Liebscher
Dr. Zoe Harris, King's College Hospital R&D

Appendix B

King's College Hospital Research & Development Approval

Please ensure that you are aware of your responsibilities in relation to The Data Protection Act 1998, NHS Confidentiality Code of Practice, NHS Caldicott Report and Caldicott Guardians, the Human Tissue Act 2004, Good Clinical Practice, the NHS Research Governance Framework for Health and Social Care, Second Edition April 2005 and any further legislation released during the time of this study.

Members of the research team must have appropriate substantive or honorary contracts with the Trust prior to the study commencing. Any additional researchers who join the study at a later stage must also hold a suitable contract.

If the project is a clinical trial under the European Union Clinical Trials Directive the following must also be complied with:

1. The EU Directive on Clinical Trials (Directive 2001/20/EC) and UK's implementation of the Directive: The Medicines for Human Use (Clinical Trials) Regulations 2004;
2. The EU Directive on Principles and Guidelines for Good Clinical Practice (EU Commission Directive 2005/28/EC); and UK's implementation of the Directive: The Medicines for Human Use (Clinical Trials) Amendment Regulations 2006;

Amendments

Please ensure that you submit a copy of any amendments made to this study to the R&D Department.

Annual Report

It is obligatory that an annual report is submitted by the Chief Investigator to the research ethics committee, and we ask that a copy is sent to the R&D Department. The yearly period commences from the date of receiving a favourable opinion from the ethics committee.

Should you require any further information please do not hesitate to contact us.

In line with the Research Governance Framework, your project may be randomly selected for monitoring for compliance against the standards set out in the Framework. For information, the Trust's process for the monitoring of projects and the associated guidance is available from the Trust's intranet or on request from the R&D Department. You will be notified by the R&D Department if and when your project has been selected as part of the monitoring process. No action is needed until that time.

Many thanks for registering your research project

Yours sincerely,



Kirsty Hedditch
Research Governance Coordinator

cc. Miss Harriet Ferner, Addiction Science Building, 4 Windsor Walk, ASB PO 78, London, SE5 8AF
cc. Jenny Liebscher, Governance & Delivery Manager, SLaM/IoP R&D Office, Room W1.08, Institute of Psychiatry, De Crespigny Park, Denmark Hill, London, SE5 8AF

17 JULY 2012

King's College Hospital
NHS Foundation Trust

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Direct fax: 020 3299 5515

Dear Dr Sutherland,

Study Title: Autobiographical memories in children exposed to trauma

In accordance with the Department of Health's Research Governance Framework for Health and Social Care, all research projects taking place within the Trust must receive a favourable opinion from an ethics committee and approval from the Department of Research and Development (R&D) prior to commencement.

- **Ethics number:** 11/LO/2044
- **Sponsor:** SLAM
- **Funder:** No cost no funding
- **End date (as per ethics application):**
- **Protocol:** v1
- **Site:** King's College NHS Foundation Trust
- **R&D approval Date:** 17 JULY 2012

R&D have reviewed the documentation submitted for this project and I am pleased to inform you that we are approving the work to proceed within **King's College Hospital NHS Foundation Trust**. The study has been allocated the Trust R&D registration number **KCH12-076**. Please quote this registration number in any communications with the R&D Department regarding your project.


Conditions of NHS Permission for research:

- The Principal Investigator must notify R&D of the actual end date of the project.
- The Principal Investigator is responsible for ensuring that Data Protection procedures are observed throughout the course of the project.
- The project must follow the agreed protocol and be conducted in accordance with all Trust Policies and Procedures especially those relating to research and data management.
- R&D must be notified of any changes to the protocol prior to implementation.
- Please submit a copy of the progress report on the anniversary of the Ethics favourable opinion ()

If appropriate it is recommended that you register with the Current Controlled Trials website; <http://isrctn.org/>

Appendix C

Parent information sheet (continued on next page)

<p>Parent Information Sheet</p> <p>King's College Hospital  NHS Foundation Trust</p> <p>Harriet Ferner Trainee Clinical Psychologist Institute of Psychiatry ASB 4 Windsor Walk London SE5 8AF</p> <p>Tel +44 (0) 74 2377 4369 Fax +44 (0) 20 7949 0860 Email: harriet.ferner@kcl.ac.uk</p> <p>KING'S College LONDON <i>Founded 1829</i></p> <p>University of London</p>	<p>What are the possible benefits of taking part?</p> <p>We cannot promise the study will help you but the information we get might help young people who experience a frightening events in the future.</p> <p>Contact details</p> <p>Please ask if there is anything you do not understand or if you would like more information. You can contact Harriet Ferner on 074 2377 4369 or write to Institute of Psychiatry, Addiction Sciences Building, 4 Windsor Walk, London, SE5 8AF.</p>	<p>What is the purpose of the study?</p> <p>We are conducting a study looking at how young people remember things after a frightening event and whether the nature of their memory affects who develops long-term reactions to frightening events. This will help us to better identify which young people are at risk of developing severe reactions to frightening events, and how we can help these children to get over what has happened to them. In order to help with the accuracy of our study, we would like your help in completing some additional questionnaires about yourself and your child.</p>	<p>Why have I been chosen?</p> <p>We are inviting the parents/principal carers of children and young people aged between 8 and 18, who attend A&E departments in South London after frightening events, to take part in our study, and we hope that 50 children and young people and their parents/principal carer will take part.</p>	<p>Do I have to take part?</p> <p>No. It is up to you to decide whether or not to take part. If you decide to take part, you are free to withdraw from the research at any time and without giving a reason. Your decisions about this will not affect the current or future care you receive at any hospital.</p>	<p>What will happen to me if I agree to take part?</p> <p>If you are happy to take part and are satisfied with the explanations from your research team, you will be asked to sign a consent form.</p>	<ul style="list-style-type: none"> If you agree to take part in this study, we would like to meet you and your child within a month after the frightening event. When we meet, we would like you to complete three short questionnaires. The questionnaires will ask about your child's strengths and difficulties, and their moods and feelings. There will also be a questionnaire which asks about your current mood and feelings. The questionnaires will take approximately 15 minutes to complete. The researcher does not need to be present while you fill in the questionnaires. 	<p>Please turn over....</p>	<p>Version 1.0 19/2/2012</p> <p>Page 1 of 3</p> <p>LREC 11/LO/2044</p>
	<p>Young People's memories after a frightening event</p> <p>Part 1</p> <p>We are a team of psychologists based at King's College London, working with Dr. Emer Sutherland and her staff at King's College Hospital A&E department. We would like to invite you to participate in our study. Please read this information sheet carefully if you wish for you to participate. Your participation is entirely voluntary.</p>						<p>Please turn over...</p>	<p>Version 1.0 19/2/2012</p> <p>Page 2 of 3</p> <p>LREC 11/LO/2044</p>

*Appendix C - Parent information sheet (continued)***Part 2*****What if there is a problem?***

Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. If you have a concern about any aspect of this study, you should ask to speak with the researchers who will do their best to answer your questions (see above for contact details). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure. Details can be obtained from the Maudsley Hospital.

Will my taking part in the study be kept confidential?

All the information recorded will be strictly confidential and kept in accordance with the Data Protection Act 1998, and used only by clinicians and researchers working within the research team. Data from the study regarding you will be stored anonymously.

What will happen to the results of the study?

When the study is completed, we intend to publish the results in order to help other people working with children and young people who have been in frightening events, *but you would not be named*. We will also write to all participants and inform you of the results.

Who has reviewed this study?

This study has been reviewed by the City Road & Hampstead Research Ethics Committee.

You will receive a copy of this information sheet and the signed consent section if you decide to participate.

Thank you for considering taking part in our study.

Appendix D


Child (8-11) information sheet

<p>Child (8-11) Information Sheet</p> <p><i>Might anything about the research upset me?</i> Sometimes it can be difficult to talk about our worries. You will be able to have breaks and can stop at any point.</p> <p><i>What are the possible benefits of taking part?</i> The study will not help you directly, but the information we get might help other young people who experience a frightening event in the future.</p> <p><i>Contact details</i> Please ask if there is anything you do not understand or if you would like more information. You can contact Harriet Ferner on 074 2377 4369.</p> <p><i>What if there is a problem?</i> If you are unhappy about any part of the study, you should ask to speak with Harriet Ferner (074 2377 4369).</p> <p><i>Will anyone else know I'm doing this?</i> Yes</p> <ul style="list-style-type: none"> • We will tell your family doctor that you are taking part • Anything that you tell us will only be looked at by people who work in our group <p>Thank you for reading this – please ask any questions if you need to.</p>	<p>Child (8-11) Information Sheet</p> <p><i>What children remember after a frightening event</i></p> <p><i>What is research?</i> Research is a careful experiment to find out the answer to an important question.</p> <p><i>Why is this project being done?</i> This project is to see if a frightening event affects the way you remember things and how you feel and think afterwards.</p> <p><i>Did anyone else check the study is OK to do?</i> Before any research goes ahead, it has to be checked by a group of people called an Ethics Committee. They make sure that the research is safe to do. Your project has been checked by the City Road & Hampstead Research Ethics Committee.</p> <p><i>Do I have to take part?</i></p> <ul style="list-style-type: none"> • No! It's up to you. You can stop taking part at any time. <p><i>What if I don't want to the research anymore?</i> If at any time you don't want to do the research anymore, just tell your parents, doctor or nurse. They will not be cross with you.</p> <p><i>What will happen to me if I take part?</i> We would like to meet you and your parent after school soon after the frightening event. We will ask you to answer some questions and talk about some worries you might have. We will record this on audiotape. The meeting will take about 1½ hours. We will also ask you to fill in a survey in a few months time. You will receive some store vouchers to say thank you for your time.</p>
<p>Harriet Ferner Trustee Clinical Psychologist Institute of Psychiatry ASB 4 Windsor Walk London SE5 8AF Tel: +44 (0) 74 2377 4369 Fax: +44 (0) 20 7848 0860 Email: harriet.ferner@kcl.ac.uk</p> <p>King's College Hospital NHS NHS Foundation Trust</p> <p>KING'S College LONDON Founded 1829 University of London</p>	<p>Please turn over</p> <p>Version 2.0 Date: 13/1/2012</p> <p>Page 1 of 2</p> <p>LREC 11/LO/2044</p>

Appendix E

Child (12-15) information sheet (continued on next page)

Child (12-15) Information Sheet

King's College Hospital 
NHS Foundation Trust

Harriet Ferner
Trainee Clinical Psychologist
Institute of Psychiatry
ASB
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SE5 8AF

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KING'S
College
LONDON
Founded 1829

University of London

Children's memories after a frightening event

Part 1

We are asking if you would agree to take part in a research project to find the answer to the following question: Does a frightening event affect children's memories or how they think and feel afterwards?

Before you decide if you want to join in it's important to understand why the research is being done and what it will involve for you. So please read this leaflet carefully. Talk about it with your family, friends, doctor or nurse if you want to.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this

Why are we doing the study?

We are conducting a study looking at how children remember things after a frightening event and whether the nature of their memory affects who develops long-term reactions to frightening events. This information will help us know which children may develop serious reactions to frightening events, and how we can help them.

Why have I been asked to take part?

You have been chosen because you recently attended Kings College Hospital A&E after a frightening event. We hope 50 children will take part in the study.

Do I have to take part?

No! It's up to you, if you do,

- Your doctor, nurse or youth worker will ask you to sign a form giving your consent or assent
- You will be given a copy of this information sheet and your signed form to keep
- **You are free to stop taking part at any time during the research** without giving a reason. If you decide to stop, this will not affect the care you receive.

Please turn over ...

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Child (12-15) Information Sheet

What will happen to me if I take part?

- If you agree to take part in this study, we would like to meet you and your parent/guardian within a month after the frightening event. When we meet, we would like to talk to you about your thoughts and feelings. We would also like you to complete some questionnaires and a memory task. The questionnaires will ask about your thoughts, feelings, beliefs and experiences. The memory tasks look at how you remember information. The meeting will take about 1½ hours. You will be able to take breaks whenever you wish.
- At about six months after the frightening event we would also like you to complete some questionnaires. You will be able to complete the questionnaires online or by post if you would prefer. The questionnaires will take about 30 minutes to complete.
- To say thank you for your time and inconvenience you will receive a £10 store voucher when you have completed Part 1 of the study, and a further £5 voucher when you have completed Part 2 of the study (total £15).
- We would like to audio-record your answers to the memory task and questions to help make sure we are presenting and recording the questions and tasks in the same way for each person taking part.

Might anything about the research upset me?

Sometimes it can be difficult to talk about our thoughts and feelings. You will be able to have breaks and can stop at any point. If you find any questions asked upsetting, and would like to talk about this, please talk to someone. For example, you can talk to your doctor or youth worker if you have one, or contact the researchers, Harriet Ferner, on 074 2377 4369 (e-mail: harriet.ferner@kcl.ac.uk). Address: Institute of Psychiatry, ASB, 4 Windsor Walk, London, SE5 8AF.

Will joining in help me?

The study will not help you directly, but the information we get might help other young people who experience frightening event in the future.

Contact details

Please ask if there is anything you do not understand or if you would like more information. You can contact Harriet Ferner on 074 2377 4369 (e-mail: harriet.ferner@kcl.ac.uk).

Thank you for reading so far – if you are still interested, please go to Part 2.

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Appendix E - Child (12-15) information sheet (continued)

Child (12-15) Information Sheet

Part 2 – information you need to know if you still want to take part

What if there is a problem?

If you are unhappy about any part of the study, you should ask to speak with Harriet Ferner on 074 2377 4369 (e-mail: harriet.ferner@kcl.ac.uk).

Will anyone else know I'm doing this?

Yes

- We will tell your family doctor that you are taking part
- Anything that you tell us will be completely confidential; only people who work in our group will be able to look at what you've said.

What will happen to the results of the study?

When the study is completed, we intend to publish the results in order to help other people working with children and young people who have been in frightening events, *but you would not be named*. We will also write to all participants and inform you of the results.



Who has reviewed this study?

Before any research goes ahead, it has to be checked by an Ethics Committee. They make sure that the research is OK to do. Your project has been checked by the City Road & Hampstead Research Ethics Committee.

Thank you for reading this – please ask any questions if you need to.

Appendix F

Child (16-18) information sheet (continued on next page)

<p>Young Person (16-18) Information Sheet</p> <p>  King's College Hospital </p> <p> Harriet Ferner Trainee Clinical Psychologist Institute of Psychiatry ASB 4 Windsor Walk London SE5 8AF </p> <p> Tel +44 (0) 74 2377 4369 Fax +44 (0) 20 7848 0860 Email: harriet.ferner@kcl.ac.uk </p> <p>  University of London </p>	<p>Young People's memories after a frightening event Part 1</p> <p>We are a team of psychologists based at King's College London, working with Dr. Emer Sutherland and her staff at King's College Hospital A&E department. We would like to invite you to participate in our study. Please read this information sheet carefully if you wish for you to participate. Your participation is entirely voluntary.</p> <p>What is the purpose of the study? We are conducting a study looking at how young people remember things after a frightening event and whether the nature of their memory affects who develops long-term reactions to frightening events. Your participation in the study will help us to better identify which young people are at risk of developing severe reactions to frightening events, and how we can help these children to get over what has happened to them.</p> <p>Why have I been chosen? We are inviting children and young people aged between 8 and 18, who attend A&E departments in South London after frightening events, to take part in our study, and we hope that 50 children and young people will take part.</p> <p>Do I have to take part? No. It is up to you to decide whether or not to take part. If you decide to take part, you are free to withdraw from the research at any time and without giving a reason. Your decisions about this will not affect the current or future care you receive at any hospital.</p> <p>What will happen to me if I agree to take part? If you are happy to take part and are satisfied with the explanations from your research team, you will be asked to sign a consent form.</p> <ul style="list-style-type: none"> If you agree to take part in this study, we would like to meet you and your parent/guardian within a month after the frightening event. When we meet, we would like to talk to you about your thoughts and feelings. We would also like you to complete some questionnaires and a memory task. The questionnaires will ask about your thoughts, feelings, beliefs and experiences. The memory tasks look at how you remember information. The meeting will take about 1½ hours. You will be able to take breaks whenever you wish. At about six months after the frightening event we would also like you to complete some questionnaires. You will be able to complete the questionnaires online or by post if you would prefer. The questionnaires will take about 30 minutes to complete. <p style="text-align: right;"><i>Please turn over.....</i></p>	<p>Version 3.0 4/5/2012</p> <p>Page 1 of 3</p> <p>LREC 11/LO/2044</p>
<ul style="list-style-type: none"> To say thank you for your time and inconvenience you will receive a £10 store voucher when you have completed Part 1 of the study, and a further £5 voucher when you have completed Part 2 of the study (total £15). We would like to audio-record your answers to the memory task and questions to help make sure we are presenting and recording the questions and tasks in the same way for each person taking part. <p>If at the end of the study we think that you might be suffering from any serious problems, we can discuss with you the possibility of getting help for you. This professional help might come from the Maudsley hospital. The Maudsley hospital is one of the leading centres internationally for the assessment and treatment of children who have been exposed to very frightening events.</p> <p>What are the possible benefits of taking part? There will be no direct benefit in taking part in the study for you, but the information we get might help other young people who experience a traffic accident or an assault in the future.</p> <p>Contact details Please ask if there is anything you do not understand or if you would like more information. You can contact Harriet Ferner on 074 2377 4369 or write to Institute of Psychiatry, ASB, 4 Windsor Walk, London, SE5 8AF.</p> <p>This completes Part 1 of the information sheet. If the information has interested you and you are considering participation, please continue to read the additional information in Part 2 before making any decision.</p> <p style="text-align: right;"><i>Please turn over...</i></p>	<p>Version 3.0 4.5.2012</p> <p>Page 2 of 3</p> <p>LREC 11/LO/2044</p>	

*Appendix F – child (16-18) information sheet (continued)***Part 2*****What if there is a problem?***

Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. If you have a concern about any aspect of this study, you should ask to speak with the researchers who will do their best to answer your questions (see above for contact details). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure. Details can be obtained from the Maudsley Hospital.

Will my taking part in the study be kept confidential?

All the information recorded will be strictly confidential and kept in accordance with the Data Protection Act 1998, and used only by clinicians and researchers working within the research team. Data from the study regarding you will be stored anonymously. We will contact your GP to inform them of your participation in the research.

What will happen to the results of the study?

When the study is completed, we intend to publish the results in order to help other people working with children and young people who have been in frightening events, *but you would not be named*. We will also write to all participants and inform you of the results.

Who has reviewed this study?

This study has been reviewed by the City Road & Hampstead Research Ethics Committee.

You will receive a copy of this information sheet and the signed consent section if you decide to participate.

Thank you for considering taking part in our study.

Appendix G

Supplementary Dissociation Questions for the ADIS-C

B1. Detachment

1. When the [trauma] was happening did you feel numb or empty inside?
2. When the [trauma] was happening, did you feel so shocked that you didn't feel anything?
3. Since the [trauma] happened, have you ever felt numb or empty inside?
4. Since the [trauma] happened, have you ever felt so shocked that you haven't felt anything?

B2. Reduced awareness

5. When the [trauma] was happening, did you feel as if you were in a daze?
6. When the [trauma] was happening, did you feel as if you weren't noticing what was going on around you?
7. Since the [trauma] happened, have you ever felt as if you were in a daze?
8. Since the [trauma] happened, have you felt as if you weren't noticing what was going on around you?

B3. Derealization

9. When the [trauma] was happening, did you feel as if things around you weren't real?
10. When the [trauma] was happening, did you feel as if you were in a dream or a movie?
11. Since the [trauma] happened, have you felt as if things around you weren't real?
12. Since the [trauma] happened, have you felt as if you were in a dream or a movie?

B4. Depersonalization

13. When the [trauma] was happening, did you feel as if your body didn't really belong to you?
14. When the [trauma] was happening, did you feel that you were outside your body?
15. When the [trauma] was happening, did you feel that you weren't really there?
16. Since the [trauma] happened, have you felt as if your body doesn't really belong to you?
17. Since the [trauma] happened, have you felt as if you were outside your body?
18. Since the [trauma] happened, have you felt as if you're not really where you actually are?

B5. Amnesia

19. Is there a gap in your memory of what happened during the [trauma]?

Note. All responses were rated either yes or no.

Appendix H

Task instructions for the Autobiographical Memory Test (Williams & Broadbent, 1986)

Instructions

Words are presented on 120mm x 100mm laminated cards and participants are asked to retrieve a specific memory for each cue word. All participants complete three practice trials involving neutral words, with feedback, to ensure that all participants understand and are able to complete the requirements of the task. Participants are informed that they will be prompted to provide a specific memory if an overgeneral response is given (i.e. a memory that is not of a particular event on a given day). In addition, a clear instruction requesting the child not to give the same memory to more than one cue word is given. Presentation of cue words is mixed across valence. Participants are given 60s to retrieve a memory.

Responses are coded as either;

- 1) *specific*
- 2) *overgeneral* (extended or categoric; where an extended memory is of a single event lasting more than one day and a categoric memory is a generic collection or class of events)
- 3) *no memory*
- 4) *repeated memory* (when the same memory is given in response to more than one word)

Failure to respond is coded as an omission; failure to retrieve a memory is coded as 'no memory'. Failure to retrieve a specific memory results is categorised as an overgeneral response. Responses will also be audio-recorded to allow for inter-rater reliability of coding to be established.

Words

The task consists of 10 emotional words (5 x positively valenced, 5 x negatively valenced).

Positively valenced words

Happy
Surprised
Safe
Successful
Interested

Negatively valenced words

Sad
Lonely
Hurt
Careless
Angry

Instructions and word list adapted from Dummond, et al.. (2006)

Appendix I

Posttraumatic Avoidance Scale (Andrews, et al., 2013) (continued on next page)

Child - PAS

Child-PAS

The following questionnaire is about how much people think about a frightening event after it has happened. There are 20 questions in total.

Thinking about *the most recent frightening event* that has happened to you, please circle the number on the scale which best describes how you think about it now.

Please try to answer the questions as honestly as you can. There is no right or wrong answer, and you don't spend too long thinking about your answers.

If any of the questions don't make sense, please ask the researcher for help. They will be happy to explain what the questions mean.

		NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
1.	Do you try to put thoughts and memories of the event out of your mind?	0	1	2	3	4
2.	Do you try not to get upset about what happened?	0	1	2	3	4
3.	Do you avoid things that might remind you of the event?	0	1	2	3	4
4.	Does it feel like the event never happened?	0	1	2	3	4
5.	Do you feel no emotions about the event even though you want to?	0	1	2	3	4
6.	Does it feel that the event was not real?	0	1	2	3	4
7.	When you go over the event, does it feel like your emotions have been switched off?	0	1	2	3	4
8.	Do you make an effort not to talk about what happened?	0	1	2	3	4
9.	When you go over the event, does it feel like you are watching yourself or seeing yourself as if it was another person?	0	1	2	3	4
10.	Do you avoid going to places that might remind you of what happened?	0	1	2	3	4

Posttraumatic Avoidance Scale (continued)

Child - PAS

		NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
11.	When you think about the event, does it seem like you are looking at it through a big glass window so that it seems far away?	0	1	2	3	4
12.	Do you deliberately distract yourself if you find yourself going over the details of the event?	0	1	2	3	4
13.	Do you ever get confused about whether the event really happened or you just dreamed it?	0	1	2	3	4
14.	When you go over the event do your emotions feel numb?	0	1	2	3	4
15.	Do you find that you keep busy so as not to think about what happened?	0	1	2	3	4
16.	Do you make it clear to your family and friends that you don't want to talk about it?	0	1	2	3	4
17.	If you find yourself getting upset about the event, do you try to distract yourself by doing something else?	0	1	2	3	4
18.	Does it seem like the event must have happened to someone else and not really to you?	0	1	2	3	4
19.	Do you feel that you should be more upset about what happened?	0	1	2	3	4
20.	Do you do things to deliberately stop yourself thinking about the event?	0	1	2	3	4

Appendix J

Participant Demographic Characteristics

	TOTAL		ASD		NON-ASD		TEST STATISTIC ^a
	N = 43		n = 13		n = 30		
	Median ^b	Interquartile Range ^b	Median ^b	Interquartile Range ^b	Median ^b	Interquartile Range ^b	
Age (years)							$U = 193, p = .948$
	15.0	(5.0)	15.0	(4.50)	14.50	(5.00)	
Education (years)							$t(41) = .36, p = .718$
	10.0	(5.0)	M = 9.69	SD = 2.78	M = 9.33	SD = 3.04	
IQ (t-score)							$U = 145, p = .232$
	M = 48.9	SD = 10.79	50.0	(4.5)	47.0	(13.5)	
Total previous traumas							$U = 159, p = .339$
	2.0	(2.0)	2.0	(4.50)	2.0	(2.25)	
Days since accident							$t(41) = -.59, p = .561$
	M = 24.37	SD = 6.66	M = 23.46	SD = 8.06	M = 24.77	SD = 6.07	
	Freq.	%	Freq.	%	Freq.	%	
Gender (%)							$\chi^2(1) = .054, p = 1.00$
Male	21	(48.8)	6	(46.2)	15	(50.0)	
Female	22	(51.2)	7	(53.8)	15	(50.0)	
Ethnic Group (%)							$\chi^2(10) = 10.7, p = .384$
White British	10	(23.3)	1	(7.7)	9	(30.0)	
Any other white background	1	(2.3)	0	(0.0)	1	(3.3)	
White and black Caribbean	5	(11.6)	2	(15.4)	3	(10.0)	
White and black African	4	(9.3)	1	(7.7)	3	(10.0)	
White and Asian	1	(2.3)	0	(0.0)	1	(3.3)	
Any other mixed background	7	(16.3)	2	(15.4)	5	(16.7)	
Pakistani	1	(2.3)	0	(0.0)	1	(3.3)	
Bangladeshi	2	(4.7)	0	(0.0)	2	(6.7)	
Caribbean	8	(18.6)	5	(38.5)	3	(10.0)	
African	3	(7.0)	2	(15.4)	1	(3.3)	
Chinese	1	(2.3)	0	(0.0)	1	(3.3)	
Prior Mental Health Difficulties							$\chi^2(1) = .061, p = 1.00$
Yes	11	(25.6)	3	(23.1)	8	(26.7)	
No	32	(74.4)	10	(76.9)	22	(73.3)	
Prior exposure to trauma							$\chi^2(1) = .346, p = .699$
Prior Exposure	34	(79.1)	11	(84.6)	23	(76.7)	
No prior exposure	9	(20.9)	2	(15.4)	7	(23.3)	

^a exact two-tailed significance reported.

^b where variables were normally distributed means (M) and standard deviations (SD) are reported.

Appendix K

Trauma characteristics of participants

	TOTAL		ASD		NON-ASD		TEST STATISTIC ^a
N	43		13		30		
	Median ^b	Interquartile Range ^b	Median ^b	Interquartile Range ^b	Median ^b	Interquartile Range ^b	
Trauma Severity (%)	4	(3)	4	(4)	4	(3)	U = 18.7, <i>p</i> = .845
	Freq.	%		%	Freq.	%	
1.Immediate Resuscitation	14	(32.6)	4	(30.8)	10	(33.3)	
2.Very Urgent	0	(0.0)	0	(0.0)	0	(0.0)	
3.Urgent	5	(11.6)	2	(15.4)	3	(10.0)	
4.Standard	16	(37.2)	4	(30.8)	12	(40.0)	
5.Non-Urgent	1	(2.3)	0	(0.0)	1	(3.3)	
6.Not Triage	7	(16.3)	3	(23.1)	4	(13.3)	
Loss of Consciousness (%)							$\chi^2 (1) = .246$, <i>p</i> = .681
Yes	8	(18.6)	3	(23.1)	5	(16.7)	
No	35	(81.4)	10	(76.9)	25	(83.3)	
Trauma Type (%)							$\chi^2 (6) = 5.11$, <i>p</i> = .582
Assault	18	(41.9)	4	(30.8)	14	(46.7)	
Road Traffic Accident	7	(16.3)	3	(23.1)	4	(13.3)	
Burn	6	(14.0)	2	(15.4)	4	(13.3)	
Fall	4	(9.3)	0	(0.0)	4	(13.3)	
Asthma/Anaphylaxis	3	(7.0)	1	(7.7)	2	(6.7)	
Miscarriage	2	(4.7)	1	(7.7)	1	(3.3)	
Other	3	(7.0)	2	(15.4)	1	(3.3)	
Arrival Mode							$\chi^2 (3) = 2.28$, <i>p</i> = .527
Ambulance	27	(62.8)	6	(46.2)	21	(70.0)	
Car	9	(20.9)	4	(30.8)	5	(16.7)	
Bus	5	(11.6)	2	(15.4)	3	(10.0)	
Walking	2	(4.7)	1	(7.7)	1	(3.3)	
Most Distressing Event							$\chi^2 = .31$, <i>p</i> = .709
This event	22	(51.2)	7	(53.8)	15	(50.0)	
Previous event	13	(30.2)	3	(23.1)	10	(33.3)	
Missing	8	(18.6)	3	(23.1)	5	(16.7)	

^a exact two-tailed significance reported.

^b where variables were normally distributed, means (M) and standard deviations (SD) are reported.

Appendix L

Autobiographical Memory Test individual item responses.

Cue Word	Specific	Overgeneral	No Memory	Repeated Memory
Positive Words				
Happy	32	10	1	0
Successful	36	7	0	0
Surprised	38	3	2	0
Safe	19	22	2	0
Interested	26	16	1	0
Negative Words				
Careless	36	5	1	1
Angry	34	8	0	1
Sad	30	13	0	0
Lonely	24	18	1	0
Hurt	36	6	0	1

Appendix M

Gender differences on the Autobiographical Memory Test

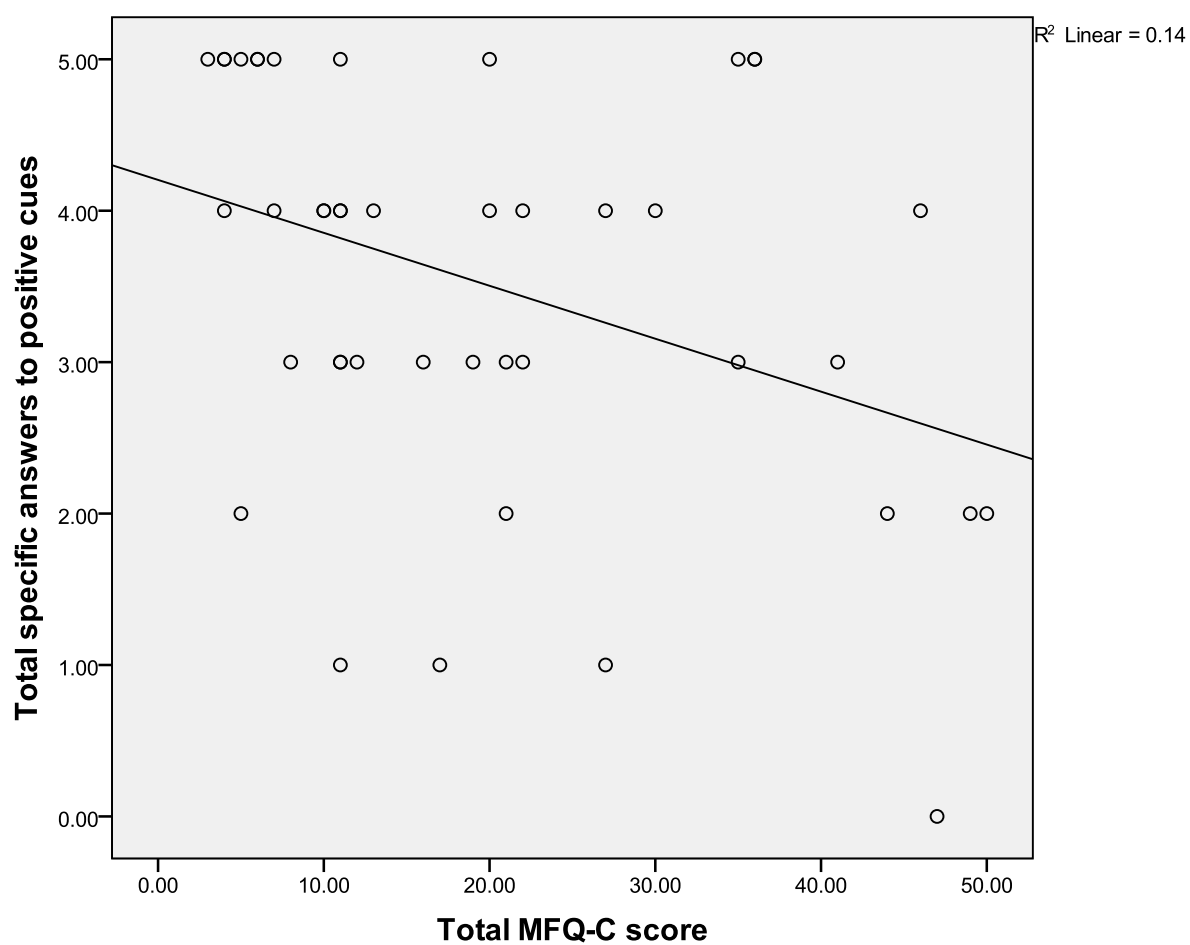
	Males		Females		TEST STATISTIC ^a
N = 43	n = 21		n = 22		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
SPECIFIC MEMORIES					
Total	8.05 (1.94)	8.0 (2.0)	6.50 (2.41)	7.0 (4.25)	<i>U</i> = 142, <i>p</i> = .028*
Positive cues	3.86 (1.15)	4.0 (2.0)	3.18 (1.44)	3.0 (2.25)	<i>U</i> = 166, <i>p</i> = .104
Negative cues	4.19 (.98)	4.0 (1.0)	3.27 (1.39)	4.0 (2.0)	<i>U</i> = 138, <i>p</i> = .018*
OVERGENERAL MEMORIES					
Total	1.67 (1.85)	1.0 (2.0)	3.27 (2.47)	3.0 (4.25)	<i>U</i> = 138, <i>p</i> = .021*
Positive cues	1.0 (1.14)	1.0 (1.0)	1.68 (1.43)	1.5 (1.50)	<i>U</i> = 162, <i>p</i> = .081
Negative cues	.67 (.91)	.00 (1.0)	1.64 (1.43)	1.0 (2.25)	<i>U</i> = 136, <i>p</i> = .015*
RESPONSE LATENCIES (seconds)					
Total specific memories	7.20 (3.99)	6.14 (7.47)	7.06 (4.93)	6.78 (5.67)	<i>U</i> = 214, <i>p</i> = .680
Positive cues specific memories	6.72 (4.81)	5.15 (4.41)	6.28 (4.68)	5.74 (5.09)	<i>U</i> = 221, <i>p</i> = .808
Negative cues specific memories	7.66 (5.23)	6.20 (4.75)	7.51 (5.65)	6.11 (7.49)	<i>U</i> = 224, <i>p</i> = .865

^a exact two-tailed significance reported.

**p* < 0.05

Appendix N

The relationship between positive cue word responses and depression severity scores.



MFQ-C=Mood and feelings questionnaire – child version

Appendix O

Correlations between child depression severity scores and predictors of posttraumatic stress reactions.

	TEST STATISTIC ^a
	MFQ-C scores
N = 43	
CRSQ-RS	
Total Score	$r_s(41) = .81, p = .000^{***}$
PAS	
Total Score	$r_s(41) = .71, p = .000^{***}$
Controlled Avoidance	$r_s(41) = .62, p = .000^{***}$
Automatic Avoidance	$r_s(41) = .54, p = .000^{***}$
cPTCI	
cPTCI Total	$r_s(41) = .83, p = .000^{***}$
cPTCI-Permanent and disturbing change	$r_s(41) = .73, p = .000^{***}$
cPTCI-Scary world	$r_s(41) = .71, p = .000^{***}$
HADS	
HADS-Anxiety	$r_s(34) = .11, p = .505$
HADS-Depression	$r_s(34) = .18, p = .300$
SDQ	
SDQ Total	$r_s(34) = .33, p = .047^*$
SDQ Emotional distress	$r_s(34) = .50, p = .001^{**}$
SDQ Behavioural difficulties	$r_s(34) = .13, p = .430$
SDQ Hyperactivity	$r_s(34) = .08, p = .641$
SDQ Peer problems	$r_s(34) = .40, p = .015^{**}$
SDQ Kind and helpful behaviour	$r_s(34) = -.09, p = .609$
SDQ Impact	$r_s(34) = .332, p = .051$

^a exact significance, two-tailed

* $p < 0.05$; ** $p < 0.001$

MFQ-C = mood and feelings questionnaire - child version; CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI = child posttraumatic cognitions inventory; SDQ = strengths and difficulties questionnaire.

Appendix P

Correlations for established predictor variables

PAS Total ^a	.63***																
Controlled Avoidance	.52***	.92***															
Automatic Avoidance ^a	.56***	.76***	.45*														
cPTCI-Total	.74***	.66***	.56***	.58***													
cPTCI-PC	.77***	.70***	.61***	.60***	.92***												
cPTCI-SW ^a	.58***	.49*	.41*	.46*	.91***	.67***											
HADS-Anxiety ^a	.23	.17	.19	.07	.08	.13	.02										
HADS-Depression	.20	.31	.29	.23	.19	.24	.12	.55***									
SDQ Total ^a	.31	.32	.32	.22	.40*	.38*	.37*	.23	.34*								
SDQ Emotional distress	.51*	.51*	.51*	.31	.45**	.46**	.37*	.27	.25	.74***							
SDQ Behavioural difficulties	.20	.08	.02	.16	.30	.24	.32	.14	.22	.67***	.34*						
SDQ Hyperactive ^a	.03	.18	.17	.14	.31	.30	.27	.13	.29	.77***	.37*	.35*					
SDQ Peer problems	.20	.16	.18	.04	.15	.11	.17	.14	.26	.82***	.47**	.52**	.49**				
SDQ Kind and helpful behaviour	.04	.004	-.02	.04	-.19	-.14	-.22	.02	-.14	-.52**	-.17	-.35*	-.47**	-.57***			
SDQ impact	.07	-.06	.01	-.76	.24	.22	.23	.18	.22	.43*	.18	.54**	.27	.39*	-.49**		
	CRSQ-RS Total	PAS Total ^a	Controlled Avoidance	Automatic Avoidance ^a	cPTCI-Total	cPTCI-PC	cPTCI-SW ^a	HADS-Anxiety ^a	HADS-Depression	SDQ Total ^a	SDQ Emotional distress	SDQ Behavioural difficulties	SDQ Hyperactivity ^a	SDQ Peer problems	SDQ Kind and helpful behaviour		

^anormally distributed data, therefore Pearson's correlations reported.

significance (two-tailed); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI (PC;SW) = child posttraumatic cognitions inventory (permanent and disturbing change; scary world); SDQ = strengths and difficulties questionnaire.

Appendix Q

Autobiographical memory test and established predictor variable correlations.

PAS Total			-.25	-.25	-.21		.27	.29	.23		-.28	-.32*	-.17
Controlled Avoidance			-.17	-.16	-.15		.20	.18	.19		-.22	-.31*	-.13
Automatic Avoidance			-.26	-.24	-.24		.23	.26	.20		-.29	-.22	-.25
cPTCI-Total			-.19	-.37*	.02		.19	.30*	.06		-.12	-.10	-.04
cPTCI-PC			-.10	-.21	.02		.11	.17	.07		-.22	-.23	-.10
cPTCI-SW			-.19	-.38*	.06		.17	.32*	-.01		-.04	.002	.01
CRSQ-RS			-.29	-.35*	-.19		.30	.32*	.26		-.23	-.20	-.20
HADS-Anxiety			-.39*	-.25	-.43**		.47**	.32	.48**		-.34*	-.43**	-.30
HADS-Depression			-.19	-.05	-.31		.23	.05	.32		-.35*	-.27	-.40*
SDQ Total			-.05	-.05	-.03		.08	.02	.10		-.09	.00	-.14
SDQ Emotional distress			-.04	.04	-.10		.06	-.08	.19		-.17	-.07	-.14
SDQ Behavioural difficulties			-.01	-.11	.09		-.06	.04	-.12		.04	-.03	-.09
SDQ Hyperactive			-.06	.03	.08		.00	-.03	.01		-.06	.06	-.16
SDQ Peer problems			-.17	-.15	-.15		.18	.13	.17		.04	.06	.26
SDQ Kind and helpful behaviour			.11	.12	.08		-.11	-.09	-.11		-.11	-.17	.17
SDQ impact			-.09	-.13	-.04		.04	.03	.05		-.03	-.04	-.06
	SPECIFIC MEMORIES												
	Total												
	Positive Cues												
	Negative Cues												
	Overgeneral Memories												
	Total												
	Positive Cues												
	Negative Cues												
	Response Latencies												
	Total specific												
	Positive cue specific memories												
	Negative cue specific memories												

significance (two-tailed); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI (PC;SW) = child posttraumatic cognitions inventory (permanent and disturbing change; scary world); SDQ = strengths and difficulties questionnaire.

Appendix R

Autobiographical memory test and established predictor variable correlations controlling for gender.

PAS Total			-.20	-.22	-.16		.20	.24	.15		-.29	-.33	-.23
Controlled Avoidance			-.09	-.10	-.07		.11	.11	.10		-.20	-.29	-.14
Automatic Avoidance			-.30	-.27	-.29		.25	.29	.22		-.35	-.24	-.35
cPTCI-Total			-.13	-.34	.13		.11	.26	-.03		-.14	-.09	-.09
cPTCI-PC			-.07	-.23	.11		.09	.19	.01		-.26	-.21	-.18
cPTCI-SW			-.13	-.35	.15		.09	.26	-.08		-.05	-.01	-.03
CRSQ-RS			-.23	-.32	-.10		.23	.27	.17		-.27	-.15	-.24
HADS-Anxiety			-.43	-.27	-.48		.53	.36	.53		-.36	-.44	-.31
HADS-Depression			-.24	-.08	-.35		.27	.08	.35		-.34	-.26	-.40
SDQ Total			-.09	-.11	-.05		.09	.06	.10		-.03	.04	-.09
SDQ Emotional distress			.01	-.06	-.05		-.00	-.12	.13		-.12	-.03	-.12
SDQ Behavioural difficulties			-.06	-.19	.07		-.03	.10	-.12		-.00	-.01	-.05
SDQ Hyperactive			-.03	-.06	.01		-.08	.05	.08		-.04	.06	-.12
SDQ Peer problems			-.16	-.16	-.12		.13	.12	.10		.11	.11	.05
SDQ Kind and helpful behaviour			.22	.21	.17		-.21	-.18	-.19		-.11	-.19	.01
SDQ impact			-.11	-.14	-.06		.06	.05	.07		-.02	-.03	-.03
	SPECIFIC MEMORIES					OVERGENERAL MEMORIES				RESPONSE LATENCIES			
	Total					Total				Total specific			
	Positive Cues					Positive Cues				Positive cue specific memories			
	Negative Cues					Negative Cues				Negative cue specific memories			

CRSQ-RS = Child response styles questionnaire - rumination subscale; PAS = posttraumatic avoidance scale; cPTCI (PC;SW) = child posttraumatic cognitions inventory (permanent and disturbing change; scary world); SDQ = strengths and difficulties questionnaire.

Service Evaluation Project

Are People who use 'Improving Access to Psychological Therapies'
(IAPT) Representative of the Local Population?

Supervised by: Dr June Brown

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1. Abstract

A stereotype of psychological therapy services is that they are socially exclusive, being largely used by white middle class women. The 'Improving Access to Psychological Therapies (IAPT)' initiative, a relatively new national programme attempts to make evidence-based therapies more accessible. To assess whether or not IAPT services are socially more inclusive, data from a community survey in Southwark (SELCoH I) was compared with that from the Southwark Psychological Therapies Service (SPTS) to investigate whether SPTS service users are representative of those in the local community with common mental health problems. Specifically we compared age, gender, ethnicity, and occupational status (including sick pay and benefits status). A secondary analysis evaluated differences between Self- and GP- referral pathways with SELCOH survey data. The overall distributions of these demographic variables differed significantly between the SPTS clients and SELCoH participants scoring above the clinical threshold on age, gender, ethnicity, employment status and benefits status. However, when referral pathways are accounted for, Self-Referrals were more representative of the local community with respect to mean age, gender, ethnicity and benefits status. The implications of these findings are discussed.

2. Introduction

Social exclusion may be defined as 'an enforced lack of participation in key social, cultural and political activities' (Morgan & Fearon, 2007). Historically, social exclusion has been a recognised difficulty when providing access to mental health services for those in need. In the United Kingdom schemes have been introduced in an attempt to tackle this issue in the National Health Service (NHS). The current service evaluation investigates social exclusion specifically with regard to access to the Improving Access to Psychological Therapies (IAPT) Service. This is a recent government initiative to increase public access to effective psychological therapies for common mental health problems. The introduction summarises the issue of social exclusion, its relevance in health care settings, and how it may be operationalised. IAPT and features designed to increase accessibility in the service are then described. Finally, the current study, to establish whether IAPT service users are representative of those in the local community is described.

2.1 Social Exclusion and Mental Health

Social exclusion, is defined as 'exclusion from the prevailing social system and its rights and privileges', and typically results from poverty or from belonging to minority social groups (Oxford English Dictionary, 2nd edition, 1989). In mental health, social inequalities result from complex interactions between a number of factors such as age, socioeconomic status, level of education and ethnicity (Friedli, 2009), and exist on a number of levels. For example, there are inequalities both in mental health problems, (Bambra et al., 2009; Department of Health (DH), 2008; Friedli, 2009; Marmot, 2010), and in access to services (DH, 2008; Marmot, 2010).

The current paradigms for health care emphasize human rights and evidence-based care. In following these, we need to identify and measure factors that hinder or facilitate social inclusion for people with mental health difficulties (Cobigo & Stuart, 2010). The UK government has long recognised a need to strive for social equality in public organisations (Cobigo & Stuart, 2010; Sartorius & Schulze, 2005; Office of the Deputy Prime Minister (OPDM), 2004).

In addition to the clear moral and ethical arguments in favour of reducing inequality in access to services, various economic, political and practical arguments have also

been put forward (DH, 2008; Layard 2006). Inequality (for example in average life expectancy, infant mortality rates and income), leads to approximately £5.5 billion a year in NHS healthcare costs (Marmot, 2010). Additionally, failure to seek help for common mental health problems can lead to the development of more severe problems requiring more intensive and expensive treatment from more highly experienced healthcare professionals (Doherty & Kartalova-O'Doherty, 2010; Layard, 2006). In his seminal report, Lord Layard (2006) described the economic implications of untreated mental health conditions. Depression and anxiety often affect an individual's ability to work. Every individual who claims incapacity benefits costs the Exchequer approximately £750 per person per month (Layard, 2006). Hence, there are both strong moral and economic arguments for tackling issues of inequality.

2.2 Social Exclusion and Psychological Therapies

Social exclusion is problematic in many aspects of NHS service provision for mental health difficulties. For the purposes of the current study, we will address the issue with respect to psychological therapies only. Recommendations by the National Institute for Health and Clinical Excellence (NICE) strongly advocate the use of psychological therapies for the treatment of a number of mental health difficulties (e.g. NICE 2004; 2011). However, access to psychological therapies has long been recognised as proving difficult (Brown, Boardman, Whittinger, & Ashworth, 2010), and discrepancies have been found between those accessing services, and those in need (e.g. Ghosh, 2009; Todd et al., 2004). There are a number of possible explanations for this discrepancy. For example, differences in health-beliefs and styles of help-seeking in different populations (Odell, Surtees, Wainwright, Commander, & Sashidharan, 1997); and reluctance to consult General Practitioners (GPs) about emotional problems (e.g. Cape & McCulloch, 1999) may partially explain the disparity. A number of government policies and initiatives have been introduced in an attempt to increase the inclusivity of services offering psychological therapies to clients. One such scheme is the Improving Access to Psychological Therapies (IAPT) service, described below.

2.3 Improving Access to Psychological Therapies

The IAPT scheme was introduced by the government in 2005. Its principle aim was to help Primary Care Trusts (PCTs) implement NICE guidelines for people suffering from anxiety and depression (DH, 2008). A necessary step in order to achieve this aim is to increase public access to effective psychological therapies for these two common mental health problems (Brown et al., 2010; DH, 2008). Hence a new IAPT service offering evidence-based psychological therapies to individuals with anxiety and depression was introduced. Following local trials in Newham and Doncaster, the IAPT scheme was rolled out nationally in 2008 by the Department of Health (DH, 2008).

Since its inception, a concerted effort has been made to monitor IAPT services to ensure effective service delivery. Special Interest Groups have been commissioned in order to monitor the impact of IAPT on different groups in the community, to inform future policy development in this area (DH, 2008). In order to inform the evaluation process, demographic variables such as gender and age are routinely collected for each new referral to the service. Further variables such as ethnic category and employment status are collected if and when clients attend their initial assessment at the service. Thus commissioners are able to establish whether IAPT is succeeding in meeting the psychological needs of the community as a whole, and to improve policy if coverage is not adequate.

Prior to the introduction of the IAPT service, individuals with mild or moderate common mental health difficulties traditionally entered the National Health Service (NHS) via their GP. This route was unsatisfactory for several reasons. In addition to strains on capacity on GP services (Lovell & Richards, 2000), studies have also found that GPs have negative health beliefs and stigmatize mental health difficulties, attitudes that make individuals reluctant to refer themselves to services (e.g. Brown et al., 2010; Cape & McCulloch., 1999; Pollock & Grime, 2002). Findings from the National Psychiatric Morbidity Survey indicated that a large proportion of individuals with mental health difficulties (70%) do not access their GPs (e.g. Bebbington et al., 2000). Hence, prior to IAPT, many individuals with problems such as anxiety and depression would not have obtained access to psychological therapies (Brown et al., 2010). There has been some evidence that increasing the number of routes to

access a service, for example by introducing a self-referral system in addition to access via a GP consultation, should allow more individuals to access a service (Brown et al., 2010; Lovell & Richards, 2000).

2.4.1 Operationalising Social Exclusion

'Social exclusion' is a broad concept which may be operationalized in a variety of ways (Bradshaw & Finch, 2003; Halleröd & Larsson, 2008). 'Social exclusion' has been commonly operationalized using the following variables: age, gender, ethnicity, benefits status and sick pay status.

Age

Age seems to be an important factor when determining whether inequalities in access to services exist (e.g. Keene & Li, 2005). Commonly, 'younger adults' and people over 65 are less likely to access services than those of working age (Ghosh, 2009). Although distribution of common mental health problems vary with age (OPDM, 2004), evidence suggests that those in need are not always afforded equal access to appropriate services due to age discrimination (Ghosh, 2009). Government initiatives, such as the NSF outline the importance in reducing age-discrimination in NHS services (OPDM, 2004), and IAPT was created with the intention of treating individuals on the basis of need, not age (Ghosh, 2009). There is evidence that up to half of all adult mental health problems begin in childhood and that common mental health problems peak for men between 44–49 years and women between 50–54 years (OPDM, 2004). However, research also suggests that the needs of young adults and older adults are often unmet in terms of mental health care provision (e.g. DH, 2001).

Interestingly, data from the early IAPT demonstration sites found less than 4% of service users to be under 18 or over 65 years of age, and that the majority (58%) were aged between 25–44 years (Clark et al., 2009). Hence, those accessing demonstration sites during the initial trial period do not appear representative of those experiencing common mental health problems in the general population in terms of age. Indeed, the NHS has been criticised for institutional ageism (Age Concern, 2008). In response, recommendations to extend the IAPT service to include eleven new 'Pathfinder' sites included expanding the service to people of all

ages on the basis of need were made (Care Services Improvement Partnership, 2008; DH, 2008).

Gender

Gender equality is acknowledged as an important goal both nationally and internationally (e.g. DH, 1999; World Health Organisation, 2006). Inequalities in gender may result from an interaction between biological, psychosocial, epidemiological and global factors (Afifi, 2007). With regard to access to mental health services, while the proportion of males and females accessing specialist mental health services, particularly hospital-based services, are similar, those who access mental health services in primary care settings are predominantly women (Afifi, 2007). Gender analysis is important in furthering our understanding of mental health problems and decisions and treatment in under-reported groups, so as to reduce possible gender-biases (Afifi, 2007).

Early analysis of IAPT demonstration sites found that nearly two thirds of IAPT service users were women (e.g. Clark et al., 2009; Khun, 2011; de Lusignan et al., 2011). It is notable that findings in IAPT services contrasted with local GP list populations where the gender distribution was broadly equal (de Lusignan et al., 2011). This implies that there are gender inequalities in accessing services. However, it is not clear without comparing gender distributions of those in the local population with mental health difficulties which services are failing to reach those in need.

Ethnicity

There is some evidence that black and minority ethnic (BME) groups may not access mental health services to the same degree as majority ethnic groups (Brown et al., 2009; 2011; Kalra & Bhugra, 2011). This seems particularly to apply to clinical psychology services (Williams, Turpin, & Hardy, 2006). This may be due to a number of factors; for example, research has found Black African and Caribbean groups may conceptualise their difficulties as social and interpersonal problems and therefore be less likely to seek help from mental health services (Brown et al., 2011). In addition, BME groups may be more likely to utilise complementary and alternative

medicines and informal care for mental health problems rather than mental health services (Kalra & Bhugra, 2011).

Nazroo, (1997) found that while black Caribbean people may have higher rates of depression than white people, they are less likely to receive treatment. Additionally, healthcare professionals may be less likely to detect common mental health problems in black people than white (e.g. Odell et al., 1997). The Department of Health reported that despite a 60% higher risk, black minority ethnic groups are frequently overlooked and have greater levels of unmet needs than white majority ethnic groups (DH, 2003). A recent population-based study evaluating depressive symptoms in immigrants and ethnic minority groups in 23 European countries found that depressive symptoms are higher for both groups compared to their corresponding majority ethnic groups (Missinne & Bracke, 2010). Using Centre for Epidemiological Studies Depression Scale (CES-D) scores from the data collected from the third round of the European Social Survey, researchers found that in the United Kingdom, mean depression scores for those from minority ethnic groups were 6.31 versus 5.58 for 'native' UK population and 5.50 for 'immigrants' (Missinne & Bracke, 2010).

In their analysis of IAPT demonstration sites, Clark et al., 2009, found that 49% of clients came from BME groups (25% Asian, 17% Black). These figures suggest there is currently a disparity between those in the BME population who suffer common mental health problems, and those who access mental health services. However, it is of note that the data from the Newham site suggests that self-referral did improve access of services for BME groups. Proportions of BME self-referrals were comparable to rates in the local population, whilst referrals from GPs tended to favour white British patients (Stavrou, Cape & Barker, 2009). Hence, further evaluation in order to inform policies that address the correctly targeted population is essential (Missinne & Bracke, 2010).

Employment

Those who are unemployed or in insecure or poor quality employment are more likely to have mental health problems than those who are not (Friedli, 2004; Marmot, 2010). Unemployment and low income are risk factors, particularly among men, for

onset of episodes of common mental health difficulties (Singleton & Lewis, 2001), and two-thirds of men under the age of 35 with mental health problems who commit suicide are unemployed (DH, 2001). Current UK policies demonstrate a commitment to improving employment for those with mental health difficulties (DH, 2006; Sainsbury Centre for Mental Health, 2009). In order to ensure services are appropriately responding to the recommendations of such policies, one must first ensure that the employment status of those entering the service is representative of the local population.

There are a variety of methods to study social exclusion. For example, focus groups of individuals from various BME groups may help evaluate the contribution of ethnicity to engagement and inclusion in services (e.g. Walls & Sashidharan, 2003). Others have analysed data collected from large-scale household surveys carried out in the general population (e.g. Bebbington et al., 2000; Singleton & Lewis, 2001). An alternative method is to compare data from such large-scale surveys with that of mental health services to establish whether or not there is a disparity between the two. The current study will be conducted using the latter methodology.

There are powerful arguments to study social exclusion in relation to access to mental health services. In order to increase equality in public access to evidence-based psychological therapies for common mental health problems, it is necessary to monitor the socio-demographic characteristics of those entering services. Data can then be compared with socio-demographic characteristics of the population at a local level in order to inform public health policies more accurately. Any discrepancies found may help to promote social equality and improve mental health services.

2.4.2 The current study

The current study proposes to compare core indicators of social exclusion within the IAPT service located in the London Borough of Southwark with the same variables collected from a large-scale household survey carried out in the same borough and hence believed to be representative of the local population as a whole. The main comparison will compare age, gender, ethnicity, and occupational status of those clients scoring above clinical cut-off for common mental health problems. It will

evaluate whether IAPT is successfully meeting the needs of the local community or whether there are areas which may benefit from further service development in order to promote social inclusion. A secondary analysis comparing self- and GP-referral pathways will evaluate the impact of introducing self-referral as a means of improving access to psychological therapies with respect to indices of social exclusion.

2.4.3 Study Aims

This service evaluation proposes to;

- 1) Describe indices of social exclusion in IAPT and SELCoH populations, specifically, age, gender, ethnicity, and occupational status.
- 2) Compare social exclusion criteria of IAPT service users with those scoring above clinical cut-off for common mental health problems in the local population.
- 3) Compare social exclusion criteria of IAPT self-referral and GP referrals respectively with those scoring above clinical cut-off for common mental health problems in the local population.

IAPT service

IAPT has an explicit goal to improve access to psychological therapies, based on the increasing recognition that practice should be based on good evidence. This has led to the creation of a service which explicitly monitors not only outcomes of treatment, but also the socio-demographic characteristics of service users.

The South East London Community Health Study (SELCoH)

The SELCoH study is a large-scale community-based survey which was conducted in order to improve understanding of the health needs of the Southwark and Lambeth community, and to improve service provision (SELCoH, 2012). A total of 1698 adults from 1075 randomly selected households living in Southwark and Lambeth completed the survey (Hatch et al., 2011) between October 2008 and December 2010. Face-to-face interviews were carried out by trained interviewers using a computer-assisted interview schedule. The current study will use data collected for the Borough of Southwark only.

3. Methods

3.1 Design

The current study was a cross-sectional analysis comparing individuals entering the Southwark IAPT service (known locally as ‘Southwark Psychological Therapy Services’, SPTS) between 1st April 2009 and 15th December 2010 with those completing the SELCoH survey between 2008 and 2010. The 1st April 2009 was chosen as the start date for data identified as discussion with the Clinical Director of SPTS suggested that data obtained prior to this may be affected by system errors and teething problems when the Southwark IAPT service was initiated. The end date was chosen as it coincided with that of the end date of collection for SELCoH.

3.2 Measures

Details of socio-demographic variables were obtained from the South East London Community Health Study and Improving Access to Psychological Therapies Southwark Service databases (described below).

The South East London Community Health (SELCoH) Study

The data collection procedure and questionnaire items are described in Hatch et al., (2011). For the purposes of the current study, data from the Southwark borough only were used so as to be comparable to those using the Southwark IAPT service. Data collected included data on socio-demographics, socioeconomic status, psychosocial factors and physical and mental health symptoms (Hatch et al., 2011) and collated using STATA 11.

Psychological Therapy Patient Management System (IAPTus)

IAPTus is a computerised system designed specifically for use in IAPT services. It allows for patient case management and reporting and is routinely used by service staff to record service-user data (<http://www.iaptus.co.uk/index.php>). Information about age and gender is known when a referral is received. All individuals assessed by the service complete standardised measures of anxiety and depression, in addition to other socioeconomic and socio-demographic measures (Clark, 2011). Where the same individual was referred more than once to the Southwark IAPT service, data on age and gender was collected from the initial referral. Details of all other demographics were taken from the first time-point these individual variables

were known to ensure as complete a data-set as possible could be analysed. Data from IAPTus needed to be extracted, exported into a spreadsheet programme (Excel), and cleaned before analysis in STATA.

Coding of socio-demographic Indicators of social exclusion

Although socio-demographic indicators were described by gender, age and ethnicity collected in both datasets, there were some inconsistencies between the 2 systems that required recoding before analysis. IAPTus age data were recoded from 'date of birth' to 'age in years'. In addition to age in years, SELCoH also included collapsed age categories ('16-24'; '25-34'; '35-44'; '45-54'; '55-64'; '65+'). Due to its potential relevance for the current study in identifying if any social exclusion due to age occurs, IAPTus age data was also collapsed into these same categories.

Information collected regarding clients' ethnicity differed between the two datasets. In IAPTus, 17 different categories are recorded. The SELCoH questionnaire provided nine different ethnic categories from which people could select the category they felt best described them; 'White'; 'Black - Caribbean'; 'Black - African'; 'Black - Other Black Group'; 'Indian'; 'Pakistani'; 'Bangladeshi'; 'Chinese' or 'None of these'. It was therefore necessary to re-code IAPTus data so that it was comparable to these categories (see Appendix A).

Socioeconomic Indicators of Social Exclusion

'Employment Status', 'Statutory Sick-Pay Status' and 'Benefits Status' were used as socioeconomic indicators in the current study. 'Employment Status' was defined by IAPTus as one of six categories; 'employed full-time', 'employed part-time', 'unemployed', 'full-time student' 'retired' or 'full-time homemaker or carer'. The SELCoH questionnaire included an 'employment section'. For the purpose of the current study, answers to question 1.25 '*Which of these best describes your current work status?*' which had been collapsed into work categories comparable to those of IAPTus, were used.

'Statutory Sick-Pay Status' was also included as both databases included this information. The SELCoH database contained derived binary yes/no information about sick-pay status, while IAPTus included the additional category 'not stated'.

Where information was 'not stated' this was re-coded as 'Missing/Not Stated'. The SELCoH questionnaire requests participants to select from a list of 11 benefit status categories all those which apply. Data obtained was then collapsed into a binary 'yes/no' variable. The current study uses information from the collapsed variable only. The related IAPTus variable provided 'yes/no/not stated' outcomes to indicate whether or not clients were in receipt of benefits ('Not Stated' was re-coded as 'Missing/Not Stated').

Referral Pathway

Information from IAPTus provided details of the referral pathway by which clients accessed the service (see Appendix B). Data for clients referred by GP- or Self-Referral pathways was extracted and used for the purposes of the secondary analysis.

Indicators of Common Mental Health Problems

Scores from the Revised Clinical Interview Schedule (CIS-R) (Lewis, Pelosi, Araya, & Dunn, 1992) were used to indicate the presence or absence of common mental disorders in the SELCoH sample. A total score of 12 or above is conventionally used to indicate the clinical cut-off for a disorder. Hence, this was the cut-off used in the current study.

3.3 Analysis

Analyses were completed in Stata 11.2. Pearson's χ^2 test was used for categorical variables and the Independent Samples t-test for continuous variables (age). Analyses accounted for clustering by household and were weighted for non-response within households (see Hatch, et al., 2011 for full details). Missing values were excluded from the main analyses.

4. Results

In total 4781 individuals were referred to SPTS between 1st April 2009 and 15th December 2010. Their data was compared with that of 852 individuals who completed the SELCoH survey in Southwark.

A series of analyses were conducted. The first described the characteristics of the 2 groups and compared them on the social exclusion indicators of gender, age, ethnicity, statutory sick pay status and benefits status. Then the social exclusion indicators of SPTS clients and SELCoH participants scoring above cut-off on the CIS-R were compared. Secondary analyses explored social exclusion indicators for GP- and Self- referral pathways when compared to SELCoH participants.

Analyses are described as follows;

4.1 Descriptions of SPTS and SELCOH groups

4.1 Comparison of social exclusion criteria for SPTS clients and SELCoH individuals scoring above clinical cut-off on the CIS-R.

4.2 Comparison of social exclusion criteria for the GP- and Self-Referral pathways with SELCoH individuals scoring above clinical cut-off on the CIS-R.

4.1 Descriptions of SPTS and SELCoH groups

SPTS Summary

Of the 4781 SPTS clients whose data was analysed, the mean age was 38 years (95% CI 37-38). They were more likely to be female (64.2%) than male (35.7%) and the majority were white (73.7%). In terms of employment status, most were in full-time employment (39.3%) or unemployed (30.1%), fewer were employed part-time (11.8%), full-time students (6.5%), retired (6.2%) or full-time homemaker or carers (6.0%). The majority of SPTS clients were not in receipt of sick pay (94.8%) or benefits (71.5%) (see Appendix C).

SELCoH Summary

Accounting for household weighting, of those completing the SELCoH survey, the mean age was 44 (95% CI 42-45). There was a higher proportion of females 66% than males 34% and the majority were white 63% and in full-time employment 35%.

The majority of those completing the survey were not in receipt of sick pay 99.7% or benefits 75% (see Appendix C).

Differences between demographic data for SPTS and SELCoH groups

Total sample analyses were performed to compare SPTS and SELCoH groups prior to analysis of those scoring above CIS-R cut-off only. Of those who completed the SELCoH survey, 196 (23%) had a CIS-R score of 12 or above indicating the likely presence of a common mental health problem (see Appendix D). Groups did not differ significantly in gender ($\chi^2(1)=1.11$, $p=0.223$) or benefits status ($\chi^2(1)=4.4$, $p=0.073$). However, there were highly significant differences in age ($t(5631)=-4.63$, $p<0.01$), age category ($\chi^2(5)=322$, $p<0.01$), ethnicity ($\chi^2(8)=111$, $p<0.01$), employment status ($\chi^2=323(5)$, $p<0.01$), and statutory sick pay status ($\chi^2=41.8(1)$, $p<0.01$) between the two groups (see Appendix C).

4.2 Comparison of social exclusion criteria for SPTS clients and SELCoH individuals scoring above clinical cut-off on the CIS-R.

In order to compare SPTS clients with individuals in the local community with common mental health problems, SPTS data was compared with those SELCoH participants scoring above clinical cut-off on CIS-R only. Group differences were found in age between SELCoH and SPTS groups. In terms of derived age category, there was a significant difference between the SPTS and SELCoH samples ($p<0.001$). There were greater proportions of SPTS clients in the 25-34 and 35-44 age categories compared to the SELCoH group, but fewer represented in each of the other age groups. There was also a significant difference in the mean age of SPTS individuals compared to those who completed the SELCoH survey ($p=0.003$) (see Table 1). It appeared from visual inspection of the data that the majority of SPTS service users were aged between 25-54 years, while SELCoH participants were more evenly distributed across groups (see Table 1).

Group differences in gender were also found. Both SPTS clients and those scoring above CIS-R cut-off in the SELCoH group were more likely to be women ($p=0.011$). However, SPTS clients were more likely to be male (35.7%) than those scoring above clinical cut-off in the SELCoH survey (unweighted percentage; 35.2%: weighted proportion; 0.28) (see Table 1).

There was a highly significant difference in ethnicity between groups ($p=0.003$). The majority in both SPTS (73.7%) and SELCoH groups (unweighted percentage; 61%, weighted percentage 62%) were 'White'. Proportions of 'Black-Caribbean' and 'Black-African', 'Indian', 'Pakistani' and 'Any Other Ethnic Group' were greater in the SELCoH group compared to SPTS clients. There were greater proportions of 'White', 'Any Other Black Background', and 'Bangladeshi' SPTS clients when compared to the SELCoH population. Proportions of 'Chinese' individuals were similar in both groups (see Table 1 and Figure 3).

In terms of employment status, greater proportions of SPTS clients were 'employed full-time', 'unemployed', and 'full-time homemakers/carers' when compared to SELCoH members scoring above the clinical cut-off on CIS-R. SELCoH participants were more likely to be 'employed part-time', 'full-time students' or 'retired'. This difference in employment status was highly significant ($p<0.001$) (see Table 1).

Visual inspection of the data indicate that the largest discrepancies between SPTS and SELCoH groups appear to be in the 'full-time student', 'unemployed' and 'retired' categories (see Figure 4). (N.B. these results did not alter in significance when individuals were classified as 'temporarily sick/disabled' 'employed full-time', 'unemployed' or excluded from analyses. The results reported here are for the data recoded as 'missing').

Finally, there were significant differences in the sick pay and benefits status of those in the SPTS group compared with those scoring above clinical cut-off in the SELCoH group. SPTS clients were more likely to be in receipt of sick pay than those who completed the SELCoH questionnaire ($p=0.014$). In contrast, a smaller proportion of SPTS individuals were in receipt of benefits compared to the SELCoH sample ($p<0.001$) (see Table 1 and Figures 5 and 6).

Table 1. Demographic Indices SPTS Services Users and those SELCoH Participants Who Score Above Clinical Cut-off on Measures of Common Mental Health Problems

	SPTS		SELCoH				Significance
n	4781		196				
	Mean	95% CI	Mean	95% CI	Mean***	95%CI***	t(df)
Age (years)	38	(37.4-38.1)	40	(37.3-42.0)	42	(39.2-45.0)	t(4976)=2.98, p=0.003
	Freq.*	%	Freq.*	%	Prop***	95%CI***	χ ² (df)***
Age Category (years)							χ ² (5)= 59.98, p<0.001
16-24	731	(15.3)	46	(23.5)	(.21)	(.15-.28)	
25-34	1524	(31.9)	41	(20.9)	(.18)	(.13-.23)	
35-44	1206	(25.2)	36	(18.4)	(.18)	(.12-.23)	
45-54	802	(16.8)	36	(18.4)	(.18)	(.12-.23)	
55-64	313	(6.5)	21	(10.7)	(.14)	(.08-.20)	
65+	205	(4.3)	16	(8.2)	(.11)	(.06-.17)	
Gender (%)							χ ² (1)= 5.71, p=0.0114
Male	1705	(35.7)	69	(35.2)	(.28)	(.22-.33)	
Female	3071	(64.2)	127	(64.8)	(.72)	(.67-.78)	
Ethnic Group (%)							χ ² (8)=28.14, p=0.0028
White	2241	(73.7)	119	(61.0)	(.62)	(.54-.70)	
Black-Caribbean	215	(7.1)	18	(9.2)	(.10)	(.05-.15)	
Black-African	183	(6.0)	27	(13.9)	(.13)	(.07-.19)	
Any other Black Background	59	(1.9)	2	(1.0)	(.01)	(.004-.03)	
Indian	26	(0.9)	4	(2.1)	(.02)	(.00-.04)	
Pakistani	11	(0.4)	2	(1.0)	(.01)	(.004-.03)	
Bangladeshi	15	(0.5)	0	(0.0)	(.00)	(0.00)	
Chinese	29	(1.0)	2	(1.0)	(.009)	(.004-.02)	
Any other Ethnic Group	263	(8.6)	21	(10.8)	(.10)	(.05-.15)	
Employment Status (%)**							χ ² (5)= 69.59, p<0.001
Employed full-time	1210	(39.3)	60	(36.8)	(.34)	(.26-.42)	
Employed part-time	362	(11.8)	22	(13.5)	(.13)	(.08-.19)	
Full-time student	199	(6.5)	26	(16.0)	(.14)	(.08-.20)	
Unemployed	927	(30.1)	25	(15.3)	(.14)	(.09-.20)	
Retired	191	(6.2)	23	(14.1)	(.19)	(.12-.27)	
Full-time homemaker /carer	186	(6.0)	7	(4.3)	(.04)	(.01-.08)	
Sick Pay Status (%)							χ ² (1)= 6.87, p=0.0138
No	2863	(94.8)	194	(99.0)	(.99)	(.97-1.00)	
Yes	156	(5.2)	2	(1.0)	(.01)	(.004-.032)	
Benefits Status (%)							χ ² (1)= 15.28, p<0.001
No	2148	(71.5)	121	(61.7)	(.59)	(.51-.66)	
Yes	858	(28.5)	75	(38.3)	(.41)	(.34-.49)	

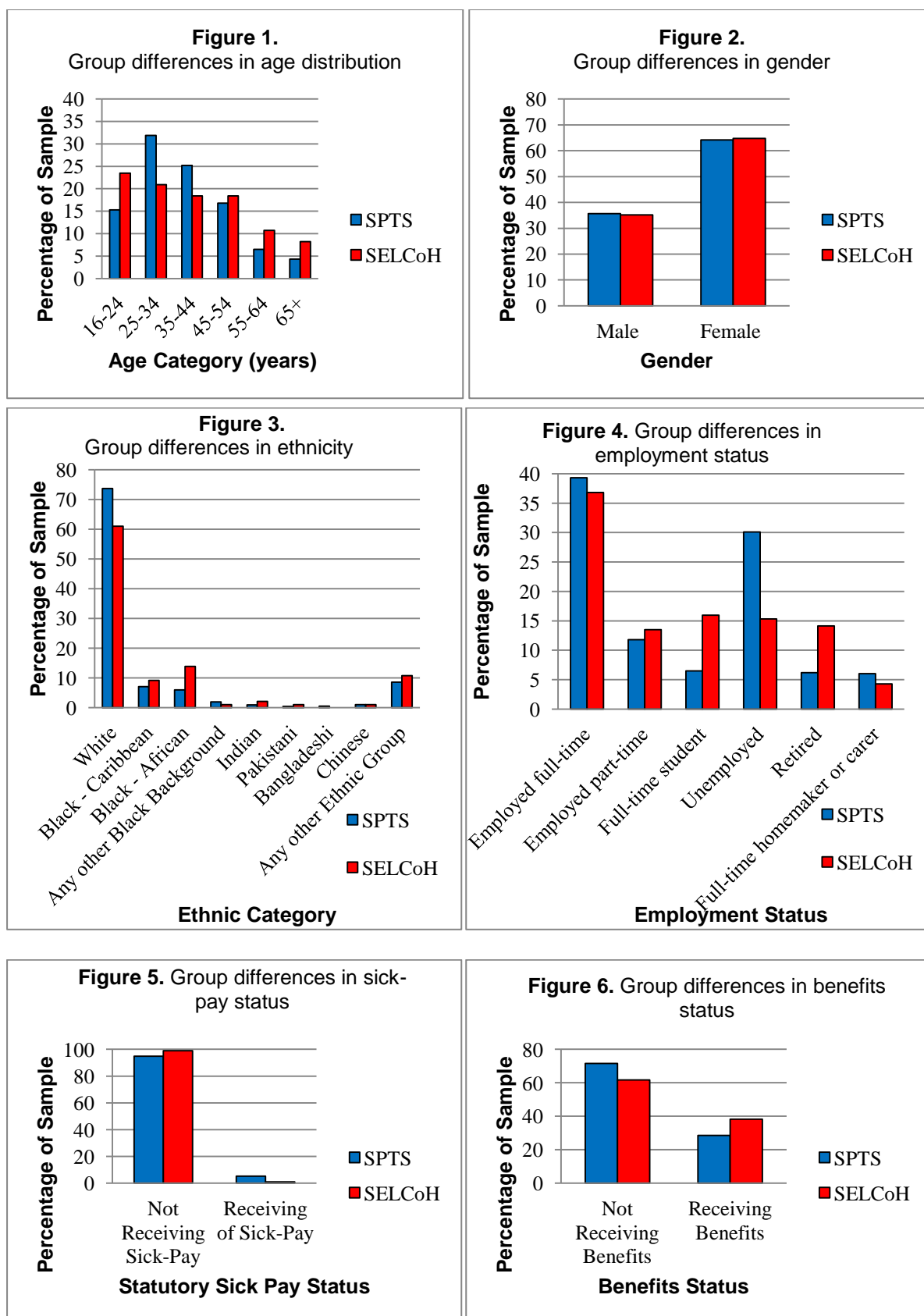
*differences in numbers due to missing values

** SELCoH category of 'temporary sick/disabled' recoded as 'missing' therefore not reported in table
(Recoded as part time - χ²=107.69(5), p<0.01; Recoded as full time - χ²= 60.5187(5), p<0.01)

***weighting accounted for

Figures 1-6

Comparison of Social Exclusion SPTS Clients and those SELCoH Participants Who Score Above Clinical Cut-off on Measures of Common Mental Health Problems



4.3 Comparison of social exclusion criteria for the GP- and Self-Referral pathways with SELCoH individuals scoring above clinical cut-off on the CIS-R.

In order to investigate the impact of the self-referral system in IAPT, GP- and Self-Referral routes were each compared on indices of social exclusion with those in the local community with common mental health problems.

GP-Referral Pathway

GP referrals accounted for 78.2% of the total SPTS sample (see Appendix A, Table A2). Group differences were found in age between SELCoH participants and SPTS GP-referrals. In terms of derived age category, there was a significant difference between the SPTS and SELCoH samples ($p < 0.01$). Patterns were similar to those found when all SPTS clients were compared to those scoring above cut-off in the SELCoH group. There were greater proportions of SPTS clients in the 25-34 and 35-44 age categories compared to the SELCoH group, but fewer represented in each of the other age groups. There was a significant difference in the mean age of SPTS GP-referrals compared to those who completed the SELCoH survey ($p < 0.01$), with GP-referrals tending to be younger (mean age 37 years) than those in the SELCoH group (un-weighted mean, 40 years; weighted mean, 42 years) (see Table 2 and Figure 7).

Group differences in gender were also found ($p < 0.01$). A greater proportion of GP-referrals were male (36%) when compared with the SELCoH sample (28%) (see Table 2 and Figure 8). These results were similar to those found when comparing the SPTS population with the SELCoH group.

There was a highly significant difference in ethnicity between groups ($p < 0.01$). The majority in both GP-referrals (75.4%) and SELCoH groups were 'White' (unweighted percentage 61%, weighted proportion 0.62). Again, visual inspection of the data suggested that distribution patterns were similar to those found when comparing the total SPTS sample with those in the local community with common mental health problems (see Table 2 and Figure 9).

This difference in employment status between SPTS GP-Referrals and SELCoH participants scoring above clinical cut-off on the CIS-R was highly significant ($p<0.001$) (see Table 2 and Figure 10). Once again, visual inspection of the data suggested that distribution patterns did not differ markedly from those found when comparing the total SPTS population with SELCoH individuals scoring above CIS-R clinical cut-off.

Finally, as was found for the total SPTS group, there were significant differences in the sick pay and benefits status of SPTS GP-referrals compared with those scoring above clinical cut-off in the SELCoH group. GP-referrals were more likely to be in receipt of sick pay than those who completed the SELCoH questionnaire ($p=0.0156$). In contrast, a smaller proportion of SPTS individuals were in receipt of benefits compared to the SELCoH sample ($p<0.001$) (see Table 1 and Figures 5 and 6).

Self-Referral Pathway

Finally, Social Exclusion indices for SPTS Self-referrals were compared with those in the SELCoH sample with common mental health problems. Self-Referrals accounted for 10.1% of the total SPTS sample (see Appendix B). There was a significant difference in age category distribution between the groups ($p<0.001$). As was the case for total SPTS sample and GP-Referrals only, Self-Referrers were more likely to be in the 25-34 and 35-44 age categories compared to the SELCoH group. However, there was also a greater proportion of self-referrers in the 45-54 age category when compared to those in the SELCoH Sample. In contrast to GP-referrals, and the total SPTS sample, there was no significant difference between the mean age of each group ($p=0.401$) (see Table 3 and Figure 7).

In contrast to gender distributions of total SPTS sample and GP-Referrals, no significant differences in gender distribution were found when comparing SPTS Self-Referrals with those in the SELCoH group scoring above CIS-R cut-off ($p=0.405$) (see Table 3 and Figure 8).

Additionally, no significant difference was found in ethnic group when Self-Referrals and SELCoH groups were compared ($p=0.827$). On visual inspection of the data, differences were found in the distribution of ethnic groups when compared to

previous analyses. As was found for total SPTS and GP-Referrals, greater proportions of Self-Referrals were of 'White', 'Any Other Black Background', and 'Bangladeshi' SPTS compared to the SELCoH population. However, there were also greater proportions of Black-Caribbean individuals in the Self-Referral group (10.8%) compared to the SELCoH population (un-weighted percentage; 9.2%: weighted proportion; 0.10) (see Table 2 and Figure 9).

In terms of employment status, as was found for the total SPTS sample and GP-Referral group, difference in employment status was significant when SPTS self-Referrals were compared to SELCoH individuals scoring above clinical cut-off on the CIS-R ($p < 0.001$). Again, distribution patterns varied slightly from the previous analyses, with greater proportions of Self-Referrers in the 'unemployed', and 'full-time homemakers/carers' only when compared to SELCoH participants (see Table 3 and Figure 10).

Finally, as was the case for previous comparisons, there was a significant difference in the sick pay status of those in the SPTS Self-Referral group compared with those scoring above clinical cut-off in the SELCoH group ($p = .0039$). SPTS clients were more likely to be in receipt of sick pay than those who completed the SELCoH questionnaire (see Table 3 and Figure 11). In contrast to previous comparisons, proportions of individuals claiming benefits did not differ significantly between groups ($p = 0.376$), again, a smaller proportion of SPTS individuals were in receipt of benefits compared to the SELCoH sample (see Table 3 and Figure 12).

Table 2. Indices of Social Exclusion SPTS Clients GP-Referrals and those SELCoH Participants Who Score Above Clinical Cut-off on the CIS-R.

	SPTS GP Referrals		SELCoH				Significance
N	3738		196				
	Mean	95% CI	Mean	95% CI	Mean***	95%CI***	t(df)
Age (years)	37	(36.7-37.5)	40	(37.3-42.0)	42	(39.2-45.0)	t(3932)=-2.60, p=0.001
	Freq.*	%	Freq.*	%	Prop***	95%CI***	χ^2 (df)***
Age Category (years)							$\chi^2(5)=65.47, p<0.001$
16-24	616	(16.5)	46	(23.5)	(.21)	(.15-.28)	
25-34	1212	(32.4)	41	(20.9)	(.18)	(.13-.23)	
35-44	953	(25.5)	36	(18.4)	(.18)	(.12-.23)	
45-54	581	(15.5)	36	(18.4)	(.18)	(.12-.23)	
55-64	228	(6.1)	21	(10.7)	(.14)	(.08-.20)	
65+	148	(4.0)	16	(8.2)	(.11)	(.06-.17)	
Gender (%)							$\chi^2(1)=6.25, p<0.0081$
Male	1350	(36.1)	69	(35.2)	(.28)	(.22-.33)	
Female	2385	(63.9)	127	(64.8)	(.72)	(.67-.78)	
Ethnic Group (%)							$\chi^2(8)=35.99, p<0.001$
White	1775	(75.4)	119	(61.0)	(.62)	(.54-.70)	
Black-Caribbean	149	(6.3)	18	(9.2)	(.10)	(.05-.15)	
Black-African	128	(5.4)	27	(13.9)	(.13)	(.07-.19)	
Any other Black Background	44	(1.9)	2	(1.0)	(.01)	(.004-.03)	
Indian	17	(.7)	4	(2.1)	(.02)	(.00-.04)	
Pakistani	7	(.3)	2	(1.0)	(.01)	(.004-.03)	
Bangladeshi	12	(.5)	0	(0.0)	(.00)	(0.00)	
Chinese	26	(1.1)	2	(1.0)	(.009)	(.004-.02)	
Any other Ethnic Group	196	(8.3)	21	(10.8)	(.10)	(.05-.15)	
Employment Status (%)**							$\chi^2(5)=66.43, p<0.001$
Employed full-time	991	(41.9)	60	(36.81)	(.34)	(.26-.42)	
Employed part-time	288	(12.2)	22	(13.5)	(.13)	(.08-.19)	
Full-time student	167	(7.1)	26	(15.95)	(.14)	(.08-.20)	
Unemployed	644	(27.3)	25	(15.34)	(.14)	(.09-.20)	
Retired	137	(5.8)	23	(14.11)	(.19)	(.12-.27)	
Full-time homemaker /carer	136	(5.8)	7	(4.29)	(.04)	(.01-.08)	
Sick Pay Status (%)							$\chi^2(1)=6.62, p=0.0156$
No	2211	(94.9)	194	(99.0)	(.99)	(.97-1.00)	
Yes	118	(5.1)	2	(1.0)	(.01)	(.004-.032)	
Benefits Status (%)							$\chi^2(1)=24.98, p<0.001$
No	1733	(74.7)	121	(61.7)	(.59)	(.51-.66)	
Yes	587	(25.3)	75	(38.3)	(.41)	(.34-.49)	

*differences in numbers due to missing values

** SELCoH category of 'temporary sick/disabled' recoded as 'missing' therefore not reported in table

(Recoded as part time - $\chi^2(5)=54.14, p<0.01$; Recoded as full time - $\chi^2(5)=100.21, p<0.01$)

***weighting accounted for

Table 3. Indices of Social Exclusion SPTS Clients Self-Referrals and those SELCoH Participants Who Score Above Clinical Cut-off on the CIS-R.

	SPTS Self-Referral		SELCoH				Significance
N	482		196				
	Mean	95% CI	Mean	95% CI	Mean***	95%CI***	t(df)
Age (years)	41	39.7-42.0	40	(37.3-42.0)	42	(39.7-42.0)	t(676)=0.84, p=0.401
	Freq.*	%	Freq.*	%	Prop***	95%CI***	$\chi^2(df)$ ***
Age Category (years)							$\chi^2(5) = 55.04, p < 0.001$
16-24	35	(7.3)	46	(23.5)	(.21)	(.15-.28)	
25-34	135	(28.0)	41	(20.9)	(.18)	(.13-.23)	
35-44	132	(27.4)	36	(18.4)	(.18)	(.12-.23)	
45-54	121	(25.1)	36	(18.4)	(.18)	(.12-.23)	
55-64	38	(7.9)	21	(10.7)	(.14)	(.08-.20)	
65+	21	(4.4)	16	(8.2)	(.11)	(.06-.17)	
Gender (%)							$\chi^2(1) = 0.63, p = 0.405$
Male	147	(30.6)	69	(35.2)	(.28)	(.22-.33)	
Female	333	(69.4)	127	(64.8)	(.72)	(.67-.78)	
Ethnic Group (%)							$\chi^2(8) = 4.75, p = 0.827$
White	217	(61.5)	119	(61.0)	(.62)	(.54-.70)	
Black-Caribbean	38	(10.8)	18	(9.2)	(.10)	(.05-.15)	
Black-African	40	(11.3)	27	(13.9)	(.13)	(.07-.19)	
Any other Black Background	9	(2.5)	2	(1.0)	(.01)	(.004-.03)	
Indian	5	(1.4)	4	(2.1)	(.02)	(.00-.04)	
Pakistani	1	(.3)	2	(1.0)	(.01)	(.004-.03)	
Bangladeshi	1	(.3)	0	(0.0)	(.00)	(0.00)	
Chinese	2	(.6)	2	(1.0)	(.009)	(.004-.02)	
Any other Ethnic Group	40	(11.3)	21	(10.8)	(.10)	(.05-.15)	
Employment Status (%)**							$\chi^2(5) = 59.54, p < 0.001$
Employed full-time	116	(32.1)	60	(36.81)	(.34)	(.26-.42)	
Employed part-time	36	(10.0)	22	(13.5)	(.13)	(.08-.19)	
Full-time student	14	(3.9)	26	(15.95)	(.14)	(.08-.20)	
Unemployed	146	(40.4)	25	(15.34)	(.14)	(.09-.20)	
Retired	25	(6.9)	23	(14.11)	(.19)	(.12-.27)	
Full-time homemaker /carer	24	(6.6)	7	(4.29)	(.04)	(.01-.08)	
Sick Pay Status (%)							$\chi^2(1) = 9.32, p = 0.0039$
No	329	(93.2)	194	(99.0)	(.99)	(.97-1.00)	
Yes	24	(6.8)	2	(1.0)	(.01)	(.004-.032)	
Benefits Status (%)							$\chi^2(1) = 0.92, p = 0.376$
No	221	(62.8)	121	(61.7)	(.59)	(.51-.66)	
Yes	131	(37.2)	75	(38.3)	(.41)	(.34-.49)	

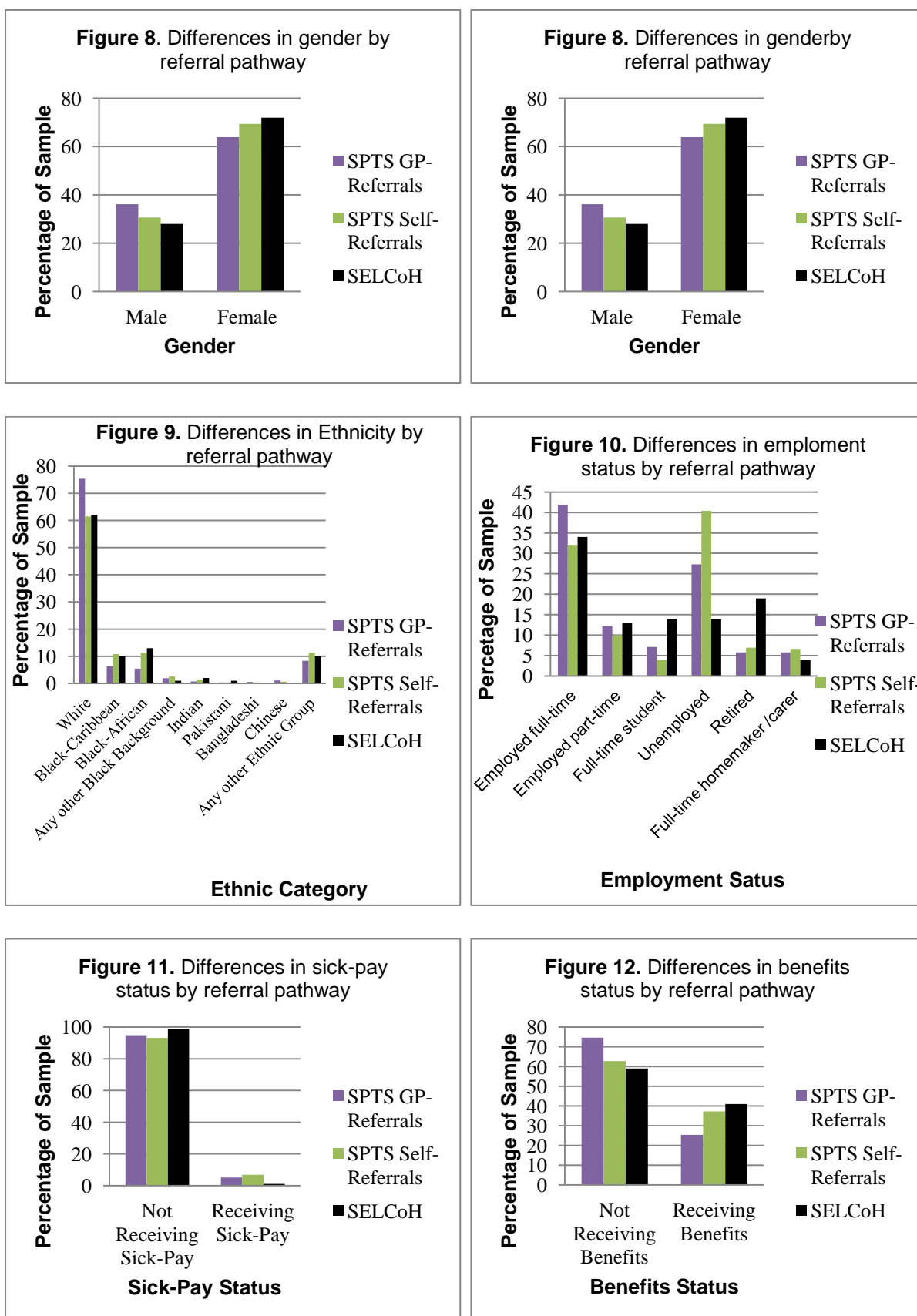
*differences in numbers due to missing values

** SELCoH category of 'temporary sick/disabled' recoded as 'missing' therefore not reported in table

(Recoded as part time - $\chi^2(5) = 86.70, p < 0.01$; Recoded as full time - $\chi^2(5) = 65.81, p < 0.01$)

***weighting accounted for

Figures 7-12. Group Differences in Social Exclusion Criteria for SPTS GP- and Self-Referral Pathways when compared to SELCoH Participants Scoring above Clinical Cut-off on the CIS-R.



5. Discussion

The current service evaluation sought to establish the extent of social exclusion with regard to access to the Southwark IAPT Service, SPTS. Results indicated that, when compared to individuals in the local population, the total SPTS sample, and GP-Referrals differed significantly on all indices of social exclusion examined. In contrast, SPTS Self-Referrers did not differ significantly from those in the local population with common mental health problems on indices of mean age, gender, and ethnicity and benefits status. Findings for each index are discussed in detail below. The limitations and implications of findings are then considered.

Age

The current study found significant differences in age-category distributions and mean age between SPTS clients and SELCoH groups. The SPTS group was generally younger with greater proportions in the 25-34 and 35-44 age categories than those in the local population with common mental health problems. These results are similar to previous research findings for IAPT (e.g. Ghosh, 2009; Clark et al., 2009), and may reflect in part the structure of NHS services. For example, those under the age of 18 are often referred to child and adolescent mental health services. Similarly, while SPTS explicitly accepts older adult referrals, it may be that individuals over the age of 65 are more commonly referred to specialist older-adult services. Interestingly, when referral pathway is accounted for, while differences for GP-Referrals remain similar, the mean age of Self-Referrals did not differ significantly for those in the local population with common mental health problems. Despite this, some differences in age-distributions remained. Although there were more self-referrers in the 45-54 year age category than GP-referrals, there were fewer in the 16-24 category, and both groups appear to under-represent those aged 55 years and above.

Our study shows that, despite government initiatives (e.g. Care Services Improvement Partnership, 2008; DH, 2009) and recommendations (e.g. Age Concern, 2008), young adults under 25 years and those aged 55 years and above have relatively poor access to services. Given evidence that common mental health problems peak for men between 44-49 years and women between 50-54 years (OPDM, 2004), that early treatment of common mental health problems in youths

may reduce their persistence into adulthood (ODPM, 2004); and that untreated mental health problems in older adults is costly in both human and economic terms, it is clear that the issue of age inequalities in IAPT is important to address. The current study also suggests that referral pathway is important to consider when investigating potential barriers to accessing the service for different age groups.

Gender

A number of explanations may account for observed gender inequalities in mental health services. That men are over-represented in GP- but not Self-Referrals suggests that either fewer women present to GPs or are referred by GPs to SPTS compared to those who self-refer. There is some evidence to suggest that male and female patients with common mental health problems are treated differently by GPs. In their 1999 study, Ross et al. found that when presented with vignettes describing increasingly severe symptoms of depression, they were less likely to ask female patients to attend follow-up consultations than males. In addition, female GPs were also more likely to refer male patients for psychiatric help (Ross et al., 1999). Similarly, in a study of depression and anxiety, Hyde et al., (2005) found that males were more likely to be offered active treatment by GPs than females. These differences may be due to a number of factors such as concern regarding higher suicide rates in young men or that they are considered less likely to return for follow-up appointments than women, and are hence offered active treatments at the initial consultation (Ross et al., 1999).

Ethnicity

'White', 'Any other Black Background' and 'Bangladeshi' clients were somewhat over-represented in the SPTS sample, while other ethnic groups were under-represented. When referral pathway was accounted for, while GP-Referrals remained significantly different in terms of ethnic distribution, Self-Referrals did not significantly differ from those in the general population with common mental health problems.

This suggests that the Self-Referral route is more effective than the GP-Referral pathway in ensuring equality in access to the service in terms of ethnicity. These findings are similar to previous IAPT studies which have found BME self-referrals

comparable to rates in local populations, while GPs have tended to favour white British patients (Brown et al, 2010; Stavrou, Cape & Barker, 2009). Taken together, this suggests that the self-referral system in IAPT may indeed improve equity of access in terms of ethnicity when compared to the GP-Referral pathway alone.

Again, GP-Referrals accounted for the majority of clients in the current study. Reasons for the disparity between GP-Referrals and the SELCoH sample remain unclear. Previous research has suggested a number of possible avenues which warrant further exploration (Williams et al., 2006). For example, GPs may be more likely to detect common mental health problems in white than black individuals (Odell et al., 1997), and cultural differences in illness perceptions may affect routes by which individuals access help (Brown et al., 2011). Future research, to elucidate this is required. It may be, for example, that BME groups are less likely to be referred on to other services by their GPs, unless at crisis point (e.g. Commander, Sashi Dharan, Odell, & Surtees, 1997), or do not present to their GPs at all (e.g. Brown et al., 2011). Sample sizes for some ethnic categories were small in both SELCoH and SPTS datasets, hence, conclusions about the accessibility of the service for these groups are limited.

Employment

Employment status differed significantly between SPTS clients and those in the local population with common mental health problems. For total SPTS and GP-Referrals, greater proportions of individuals were ‘unemployed’, ‘full-time homemakers/carers’ or ‘employed full-time’ when compared to the local population. There were greater proportions of Self-Referrers in the ‘unemployed’ and ‘full-time homemaker or carer’ categories only when compared to those in the local community with common mental health problems. Again, a number of explanations are possible. For example, it may be that those employed full-time are less likely to self-refer due to workplace sick-leave policies whereas GP-referrals enable individuals to provide written evidence of illness to employers. Visual inspection of the data suggested the Self-Referral system accounted for larger numbers of unemployed individuals entering the service.

Additionally, SPTS appeared particularly to under-represent full-time students and those in the ‘retired’ employment categories. As with differences in age, this may

reflect in part the structure of service provision for individuals in these groups. For example, full-time students may be referred to university counselling services for common mental health problems, or child and adolescent mental health services. Similarly, those of retirement age may more often attend older-adult services. However, these discrepancies are important as they indicate that, despite IAPT's aim to improve access to all (DH, 2008), the local Southwark service may not be effectively meeting the needs of the local population with regard to this.

Significant differences were also found for sick-pay status. SPTS clients were more likely than those in the local community with common mental health problems to be in receipt of sick-pay. However, they were less likely to be receiving benefits. The difference in sick-pay status remained when GP- and Self- referrals were analysed separately. However, whilst benefits status remained significantly different for GP-Referrals, Self-Referrals did not differ significantly from those in the local community with common mental health problems. In order to claim incapacity benefits, individuals must be incapable of work and not entitled to Statutory Sick Pay (Brown et al., 2009). Hence, differences may be due in part to greater proportions of unemployed individuals in the Self-Referral Group.

The interaction between work category, sick-pay and benefits status is complex. Hence, it is beyond the scope of the current evaluation to offer more than some tentative hypotheses about observed discrepancies. However, given that enabling clients' return to work is a key aim of IAPT (Layard et al. 2007), it is clear that further exploration of work-related indices of social exclusion are warranted.

Limitations

There are a number of limitations with the current study. Whilst overall sample sizes were large, smaller samples for some subgroups mean conclusions are tentative and need to be replicated. In addition, analyses were conducted for one London borough, over a limited time period. Hence, the degree to which results may be generalisable to other IAPT services and other time-frames is unknown. IAPT is a relatively new service, and it may be that as public knowledge about the service and self-referral increase, inequalities in access decrease. In addition, the current study

is correlational, thus causes of observed differences can only be tentatively hypothesised.

Differences in data collection may also account for some of the observed differences in findings. For example, the IAPT survey is a self-report questionnaire while the SELCoH survey was carried out by trained interviewers. Some categories did not overlap exactly. For example, in the SELCoH sample, employment categories included a 'temporary off-work/sick' option while the IAPT questionnaire did not. In contrast, the IAPT questionnaire asked whether people were full-time homemakers or carers, while the SELCoH equivalent referred to full-time carers only. Thus, those who were full-time homemakers but not carers may be underrepresented in this group. Additionally, the SELCoH sample accounted for weighting by household, the IAPT sample did not. Thus, it may be that several individuals presenting to the service from the same household may have led to some skew for indices such as ethnicity.

The current study did not account for differences in nature and severity of common mental health problems. The current structure of NHS mental health services favours a 'stepped-care' approach for treating anxiety and depression (NICE, 2009). IAPT services are currently designed for those with mild-moderate anxiety and depression, while more severe or complex cases (for example, those with co-morbidities) are referred to more specialist services. Previous research has suggested indices of social exclusion vary with severity (e.g. Rickert, Wiemann, & Berenson, 2000). Further analysis would be required to establish whether disparities continue to exist when symptom severity and number of co-morbidities are accounted for in the SELCoH sample. Furthermore, differences in illness severity may also impact on various social exclusion indices in less direct ways. For example, previous research has found BME groups more likely to access mental health services when in crisis (Commander et al., 1997), and that they may prefer to access other help for mild and moderate symptoms (Brown et al., 2010).

Conclusion

In conclusion, we have some evidence that a self-referral pathway is improving access to the SPTS service for those in need with respect to mean age, gender,

ethnicity and benefits status. However, clear disparities remain for indices of social exclusion when GP-referrals and the SPTS service as a whole is compared to people in the local community with common mental health problems.

Despite a number of limitations to this study, it is clear that social exclusion is an important issue and is beginning to be addressed. The current service evaluation was not intended to be an exhaustive investigation of each index of social exclusion, but an initial exploratory study to help identify if and where disparities exist. It is hoped that this will help inform the direction of future research and interventions to combat disparities identified.

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Appendix A

Recoding of IAPTus ethnic categories to be comparable with SELCoH derived ethnic categories.

Ethnic Category	IAPTus Code	SELCOH Recode
British	A	White
Irish	B	White
Any other White background	C	White
Any other mixed background	G	None of these
Any other Asian background	L	None of these
Any other Black background	P	Black – Other
Any other ethnic group	S	None of these
White and Black Caribbean	D	None of these
White and Black African	E	None of these
White and Asian	F	None of these
Indian	H	Indian
Pakistani	J	Pakistani
Bangladeshi	K	Bangladeshi
Caribbean	M	Black – Caribbean
African	N	Black – African
Chinese	R	Chinese
Not Stated	Z	Missing/Not Stated

Appendix B

Summary of SPTS referral pathways

Source of Referral	Frequency	%
General Medical Practitioner	3738	78.2
Self	482	10.1
Local Authority Social Services	6	0.1
A&E Department	7	0.1
Employer	1	0.0
Other Clinical Specialty	127	2.7
Probation Service	3	0.1
Other	350	7.3
Job Centre Plus	1	0.0
Voluntary Sector Organisation	5	0.1
Community/ Practice Nurse/ Health Visitor	61	1.3
Total	4781	100

Appendix C

Demographic differences between SPTS users and SELCoH participants

	SPTS		SELCoH				Total (weighted)*		Significance
	n = 4781		n = 852				N = 5633		
	Mean	95% CI	Mean	95% CI	Mean***	95%CI***	Mean	95% CI	t(df)
Age (years)	38	(37.4-38.1)	40	(39.2-40.8)	44	(42.4-44.8)	38.7	(38.3-39.2)	t(5631)=-4.63, p<0.01
	Freq.*	%	Freq.*	%	Prop***	95%CI***	Prop	95%CI	χ^2 (df)***
Age Category (years)									$\chi^2(5)=321.79$, p<0.01
16-24	731	(15.3)	192	(22.5)	(.19)	(.16-.23)	(.16)	(.15-.17)	
25-34	1524	(31.9)	196	(23.0)	(.19)	(.16-.22)	(.30)	(.29-.31)	
35-44	1206	(25.2)	159	(18.7)	(.17)	(.14-.20)	(.24)	(.23-.25)	
45-54	802	(16.8)	128	(15.0)	(.14)	(.12-.16)	(.16)	(.15-.17)	
55-64	313	(6.5)	81	(9.5)	(.13)	(.10-.16)	(.08)	(.07-.08)	
65+	205	(4.3)	96	(11.3)	(.18)	(.18-.19)	(.06)	(.06-.07)	
Gender (%)									$\chi^2(1)=1.11$, p=0.223
Male	1705	(35.7)	379	(44.5)	(.34)	(.31-.37)	(.35)	(.34-.37)	
Female	3071	(64.2)	473	(55.5)	(.66)	(.64-.69)	(.65)	(.63-.66)	
Ethnic Group (%)									$\chi^2(8)=111.1$, p<0.01
White	2241	(73.7)	509	(59.9)	(.63)	(.57-.66)	(.71)	(.69-.73)	
Caribbean	215	(7.1)	60	(7.1)	(.07)	(.05-.09)	(.07)	(.06-.08)	
African	183	(6.0)	145	(17.1)	(.16)	(.13-.19)	(.08)	(.07-.09)	
Any other Black Background	59	(1.9)	13	(1.53)	(.02)	(.01-.03)	(.02)	(.01-.02)	
Indian	26	(.9)	16	(1.9)	(.02)	(.005-.03)	(.01)	(.007-.01)	
Pakistani	11	(.4)	10	(1.2)	(.01)	(.001-.02)	(.01)	(.003-.008)	
Bangladeshi	15	(.5)	5	(.6)	(.004)	(.00-.01)	(.005)	(.003-.007)	
Chinese	29	(1.0)	11	(1.3)	(.01)	(.05-.02)	(.01)	(.007-.01)	
Any other Ethnic Group	263	(8.6)	81	(9.5)	(.08)	(.06-.11)	(.09)	(.08-.10)	
Employment Status (%)**									$\chi^2(5)=323.01$, p<0.01
Employed full-time	1210	(39.3)	316	(39.21)	(.35)	(.32-.39)	(.39)	(.37-.40)	
Employed part-time	362	(11.8)	120	(14.89)	(.15)	(.12-.17)	(.12)	(.11-.13)	
Full-time student	199	(6.5)	150	(18.61)	(.16)	(.12-.19)	(.08)	(.07-.09)	
Unemployed	927	(30.1)	81	(10.05)	(.09)	(.07-.11)	(.26)	(.24-.27)	
Retired	191	(6.2)	106	(13.15)	(.20)	(.15-.24)	(.09)	(.08-.10)	
Full-time homemaker or carer	186	(6.0)	33	(4.09)	(.04)	(.03-.06)	(.06)	(.05-.06)	
Sick Pay Status (%)									$\chi^2(1)=41.84$, p<0.01
No	2863	(94.8)	847	(99.8)	(.997)	(.99-1.0)	(.96)	(.95-.97)	
Yes	156	(5.2)	2	(.2)	(.03)	(.001-.006)	(.04)	(.03-.05)	
Benefits Status (%)									$\chi^2(1)=4.41$, p=0.073
No	2148	(71.5)	651	(76.7)	(.75)	(.72-.79)	(.72)	(.71-.74)	
Yes	858	(28.5)	198	(23.3)	(.25)	(.21-.28)	(.28)	(.26-.29)	

*differences in numbers due to missing values

** SELCoH category of 'temporary sick/disabled' recoded as 'missing' reported in table.

(Recoded as part time - $\chi^2=342.76(5)$, $p<0.01$ Recoded as full time - $\chi^2=88.09(5)$, $p<0.01$)

***household weighting accounted for

Appendix D

Social exclusion indices for SELCoH participants scoring above and below clinical cut-off on the CIS-R.

	SELCoH							
N	852*							
	Below Clinical Cut-off				Above Clinical Cut-off			
	Freq.*	%	Prop.	95% CI	Freq.*	%	Prop.	95% CI
n	653	(76.9)	(.76)	(.73-.80)	196	(23.1)	(.24)	(.20-.27)
Derived Age Categories (%)								$\chi^2(5)=9.21$, $p=0.168$
16-24	146	(22.4)	(.19)	(.16-.23)	46	(23.5)	(.21)	(.15-.28)
25-34	154	(23.6)	(.19)	(.16-.22)	41	(20.9)	(.18)	(.13-.23)
35-44	123	(18.7)	(.17)	(.13-.20.3)	36	(18.4)	(.18)	(.12-.23)
45-54	92	(14.1)	(.13)	(.10-.16)	36	(18.4)	(.18)	(.12-.23)
55-64	59	(9.0)	(.13)	(.09-.02)	21	(10.7)	(.14)	(.08-.20)
65+	80	(12.3)	(.20)	(.15-.24)	16	(8.2)	(.11)	(.06-.17)
Gender (%)								$\chi^2(1)=4.67$, $p=0.023$
Male	309	(47.3)	(.36)	(.33-.39)	69	(35.2)	(.27.6)	(.22-.33)
Female	344	(52.7)	(.64)	(.61-.67)	127	(64.8)	(.72.4)	(.67-.78)
Ethnic Group (%)								$\chi^2(8)=7.36$, $p=0.53$
White	388	(59.5)	(.68)	(.57-.67)	119	(61.0)	(.62)	(.54-.70)
Caribbean	41	(6.3)	(.06)	(.04-.09)	18	(9.2)	(.10)	(.05-.15)
African	118	(18.1)	(.02)	(.13-.20)	27	(13.9)	(.13)	(.07-.19)
Any other Black Background	11	(1.8)	(.02)	(.007-.03)	2	(1.0)	(.01)	(.004-.03)
Indian	12	(1.8)	(.02)	(.004-.03)	4	(2.1)	(.02)	(.00-.05)
Pakistani	8	(1.2)	(.01)	(.00-.002)	2	(1.0)	(.01)	(.004-.03)
Bangladeshi	5	(0.8)	(.01)	(.00-.01)	0	(0.0)	(.00)	(.00)
Chinese	9	(1.4)	(.01)	(.005-.02)	2	(1.0)	(.01)	(.004-.02)
Any other Ethnic Group	60	(9.2)	(.08)	(.03-.10)	21	(10.8)	(.10)	(.05-.15)
Employment Status (%)								$\chi^2(6)=80.3$, $p<0.01$
Employed full-time	255	(39.2)	(.35)	(.35-.40)	60	(30.9)	(.28)	(.22-.35)
Employed part-time	97	(14.9)	(.15)	(.12-.18)	22	(11.3)	(.11)	(.06-.15)
Unemployed	55	(8.5)	(.08)	(.06-.10)	26	(13.4)	(.12)	(.07-.17)
Full-time student	124	(19.1)	(.16)	(.13-.19)	25	(12.9)	(.12)	(.07-.17)
Retired	83	(12.7)	(.20)	(.15-.24)	23	(11.9)	(.18)	(.12-.24)
Full-time homemaker or carer	26	(4.0)	(.04)	(.03-.06)	7	(3.6)	(.16)	(.10-.22)
Temp sick/disabled	11	(1.7)	(.02)	(.007-.03)	31	(16.0)	(.04)	(.009-.06)
Sick Pay Status (%)								$\chi^2(1)=7.1$, $p<0.01$
No	650	(100)	100	1.00	194	(99.0)	(.99)	(.97-1.00)
Yes	0	(0)	0	.00	2	(1.0)	(.01)	(.004-.03)
Benefits Status (%)								$\chi^2(1)=39.1$, $p<0.01$
No	529	(81.4)	(.81)	(.77-.84)	121	(61.7)	(.59)	(.51-.66)
Yes	121	(18.6)	(.20)	(.16-.23)	75	(38.3)	(.41)	(.34-.49)
	Mean	95% CI	Weighted		Mean	95% CI	Weighted	
			Mean	95%CI			Mean	95% CI
Age (years)								$t=0.47$, $p=0.64$
	40	38.9-41.7	44	42.6-46.6	40	(37.3-42.0)	42.1	(39.2-45.0)

*differences in numbers due to missing values

** significance determined using Pearson's Chi-Square/independent samples t-test, weighting accounted for.

Volume II

Clinical Case Studies

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Case Study 1

Cognitive Behavioural Therapy for a 49-Year-Old
Man with Social Phobia

Supervised by: Dr. June Brown

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1. Abstract

KW, a 49 year old White British man, was referred to his local Community Mental Health Team after presenting with symptoms of social phobia, low self-esteem and avoidant personality traits at a local hospice where his mother had been looked after for her cancer. He described being severely affected by symptoms. For example, he felt unable to talk to people he did not know well for fear that they would think he was an idiot, or that he would not know what to say. He reported having no friends and being unable to find employment due to the severity of his difficulties. Following 15 sessions of Cognitive Behavioural Therapy, KW was referred for further psychological intervention to help reduce his social phobia symptoms as he was still experiencing difficulties. The present study describes current understanding of social phobia; and the assessment, formulation, and treatment of KW's symptoms. KW's outcomes are also presented and discussed.

2. Literature Review

2.1 A Definition of Social Phobia

Social Phobia is an unreasonable fear or anxiety in connection with exposure to social or performance situations (American Psychiatric Association, 1994) (see Appendix A for full DSM-IV diagnostic criteria). It is characterised by anxiety about unobservable events such as criticism, and situations are commonly avoided or endured with intense distress (Clark, 2005). It can also include a range of physical symptoms such as blushing, sweating, palpitations and nausea (National Institute for Health and Clinical Excellence, 2011). Some suggest that social phobia can be further sub-categorised, for example depending on whether it is generalisable across many situations or discrete to specific circumstances (Lang & Stein, 2001).

Prevalence rates of social phobia are estimated at around 1-2% in the general population and lifetime prevalence is approximately 12% (Kessler, Chiu, Dmeler, Merikangas, & Walters, 2005). Although estimates vary, largely due to disparities in diagnostic criteria and methodologies used, there is general agreement that social phobia is one of the most common anxiety disorders (den Boer 1997; Lang & Stein, 2001; Lépine & Lellouch, 1995). Onset tends to be during adolescence and is rare after age 25 years (Kessler et al., 2005), and rates are higher in females than males (Furmark, 2002). Social phobia is a chronic disorder lasting on average 20 years (Öst 1987), and has been associated with a number of impairments such as

decreased academic performance and lower income (den Boer, 1997; Lépine & Lellouch, 1995). Social phobia is commonly co-morbid, for example with depression and other anxiety disorders, and has been associated with increased risk of suicide and substance abuse (den Boer, 1997; Merikangas & Angst, 1995; Ruscio, et al., 2008; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Individuals often delay seeking help for a number of years (Judd, 1994). Thus, social phobia is frequently disabling. It can impair the quality of life and reduce functioning and hence warrants treatment, often in the context of considerable distress.

2.2. An overview of treatment approaches for social phobia

The causes of social phobia are not fully understood (den Boer, 1997). Biological, cognitive and interpersonal factors have all been implicated and treatment approaches vary accordingly (Merikangas & Angst, 1995; Stangier, Heidenreich, Peitx, Lauterbach, & Clark, 2011). National Institute for Health and Clinical Excellence (NICE) guidelines for the treatment of social phobia are currently in development (NICE, 2011). Two main approaches currently dominate; psychological therapies and pharmacological interventions.

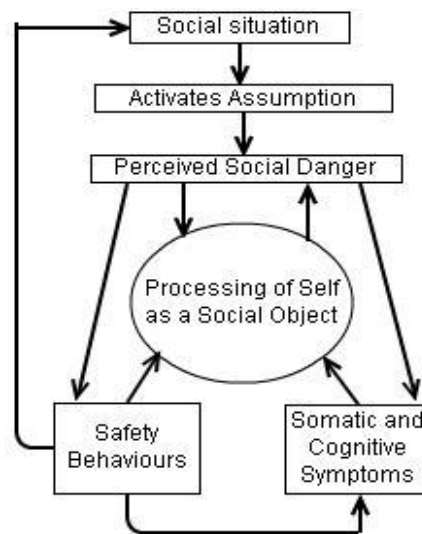
Currently, Selective-Serotonin Response Inhibitors (SSRIs) are the most commonly pharmacological interventions for social phobia (Hood et al., 2010). Although antidepressants have been found effective in treating some cases, the mechanism by which they work is not well understood (Robinson & Hood, 2007), treatment is effective only for some, and relapse rates remain high (Clark, 2005).

In contrast to pharmacological models, psychological therapies specifically aim to reduce symptoms of social phobia by targeting mental processes such as biases in thinking style. The Clark and Wells (1995) Cognitive Model of Social Phobia is commonly used in understanding and treating social phobia (see Figure 1). They hypothesise that symptoms occur due to the activation of negative views about the self and social world and biases in information processing. These are activated when an individual feels at risk of negative evaluation or judgment by others (Clark & Wells, 1995). For example, individuals with social phobia overestimate the likelihood they will behave inadequately in social situations and may believe that this will result in a personal catastrophe such as rejection or loss of worth (Clark & Wells, 1995). A vicious maintaining cycle results from cognitive responses and attempts to control

symptoms such as safety behaviours and avoidance. The model specifies several other maintaining factors such as 'Attentional Bias', anticipatory- and post-event processing (Clark & Wells, 1995). The theory can also account for the observation that individuals may continue to experience symptoms despite repeated exposure to feared events. For example, carrying out safety behaviours may prevent disconfirmation of feared outcomes (Clark, 2005).

Treatment is based on an idiosyncratic formulation and uses a number of techniques such as video feedback to show the 'true' self, and attention training to encourage clients to think in the 'here and now'. In addition, 'Behavioural Experiments' help individuals challenge assumptions, and provide encouragement to shift attention away from themselves and drop safety behaviours (Clark & Wells, 1995; Clark, 2005).

Several randomised control trials (RCTs) have evaluated the relative efficacy of cognitive therapies versus other treatment approaches (e.g. Stangier, Heidenreich, Peitx, Lauterbach, & Clark, 2003; Stangier et al., 2011). Individual CBT has been found more effective than group CBT (e.g. Stangier et al., 2003). Cognitive Therapy also produces better outcomes than waiting list controls, Interpersonal Therapy, SSRIs, Applied Relaxation and Exposure (e.g. Clark et al., 2003; 2007; Mörtberg, Clark, Sundin, & Aberg Wistedt, 2007; Stangier et al., 2003; 2011). A number of RCTs have found moderate to large effect sizes for the treatment in adults (for reviews see Butler, Chapman, Forman, & Beck, 2006; Clark et al., 2006; Hoffmann & Smitts, 2008). Given the evidence, the current intervention used in this study was guided by the Clark & Wells (1995) cognitive model of social phobia.

Figure 1. A cognitive model of social phobia from Clark & Wells (1995).

3. Case Description

3.1 Reason for Referral

KW, a 49-year-old white British man, was originally referred to his local Community Mental Health Team (CMHT) by a local hospice where he had been seen as an outpatient while his mother was an in-patient there. He presented with social anxiety, low self-esteem and avoidant personality traits. These were of particular concern due to the imminent death of his mother with whom KW had lived and been supported by until that time. KW's mother died in March 2010 shortly before he was assessed by the CMHT team. KW was seen by a previous trainee clinical psychologist for 15 weekly sessions of cognitive behavioural therapy, who referred KW on for the current intervention to continue to address his social anxiety symptoms.

3.2 Presenting Problem and History of Complaint

KW's difficulties began in secondary school and became progressively worse in later years. He described a number of symptoms such as; avoidance of interaction with others due to the fear of saying something stupid, a belief that he was inferior to others, feeling unattractive, avoiding eye-contact and stuttering when speaking to unfamiliar people.

KW described previously suffering from Obsessive-Compulsive Disorder which began when he left school and manifested in obsessive hand-washing, but reported he was no longer affected by this. Similarly, KW has a history of low mood with occasional fleeting suicidal thoughts; this showed itself occasionally during the sessions.

3.3 Personal and Family History

KW reported that his early years and adolescence were ‘unremarkable’, describing a loving and supportive upbringing. He had lived within the family home until the death of his mother in March 2010 and subsequently moved to sole-tenancy council accommodation. KW had two younger sisters with whom he was in regular contact. He described having no friendships or other contacts outside his family. KW reported an uncle who suffered anxiety in relation to leaving his home and driving, but had no knowledge of other family mental health problems.

KW described being bullied in primary school but coped reasonably well with this. At secondary school, he said he found it difficult to integrate with peers and was the victim of further bullying. The prospect of moving school at age 13 led to an increase in anxiety and he said he refused to go. KW’s education ceased at this time.

KW worked with his mother informally as a babysitter for his sisters for three years, but has had no other employment. He did not receive benefits until his referral to the CMHT team, and was previously supported by mother’s pension and lifetime savings.

KW reported that he was abstinent from alcohol and did not use illicit drugs.

3.4 Previous Treatment

KW and his family attended four sessions of Systemic Therapy when he was a teenager. He said that his father terminated these as he felt they were intrusive. KW’s sister provided him with some self-help material on social phobia about 10 years ago. Prior to the current assessment, KW had received 15 sessions of CBT from a previous clinical psychology trainee. KW had never been prescribed medication in relation to his mental health difficulties.

4. Aims of Study

Despite KW's familiarity with the Clark & Wells (1995) model and a number of behavioural experiments in previous treatment, KW continued to experience difficulties with cognitive distortions. For example, he described a tendency to focus on negative interpretations of events and difficulty in evaluating alternative neutral and positive explanations of his experiences. Hence, the current study sought to continue to treat KW's social phobia and identify potential barriers to his progress in order to reduce the impact of its symptoms on functioning and reduce distress.

5. Design

A single case A-B design was used to assess KW's social phobia before, during and at the end of treatment. Measures included idiosyncratic goals, and clinical outcome measures of social phobia and social functioning (*detailed in 'Outcomes'*).

6. Assessment and Intervention

6.1 Sessions 1-4

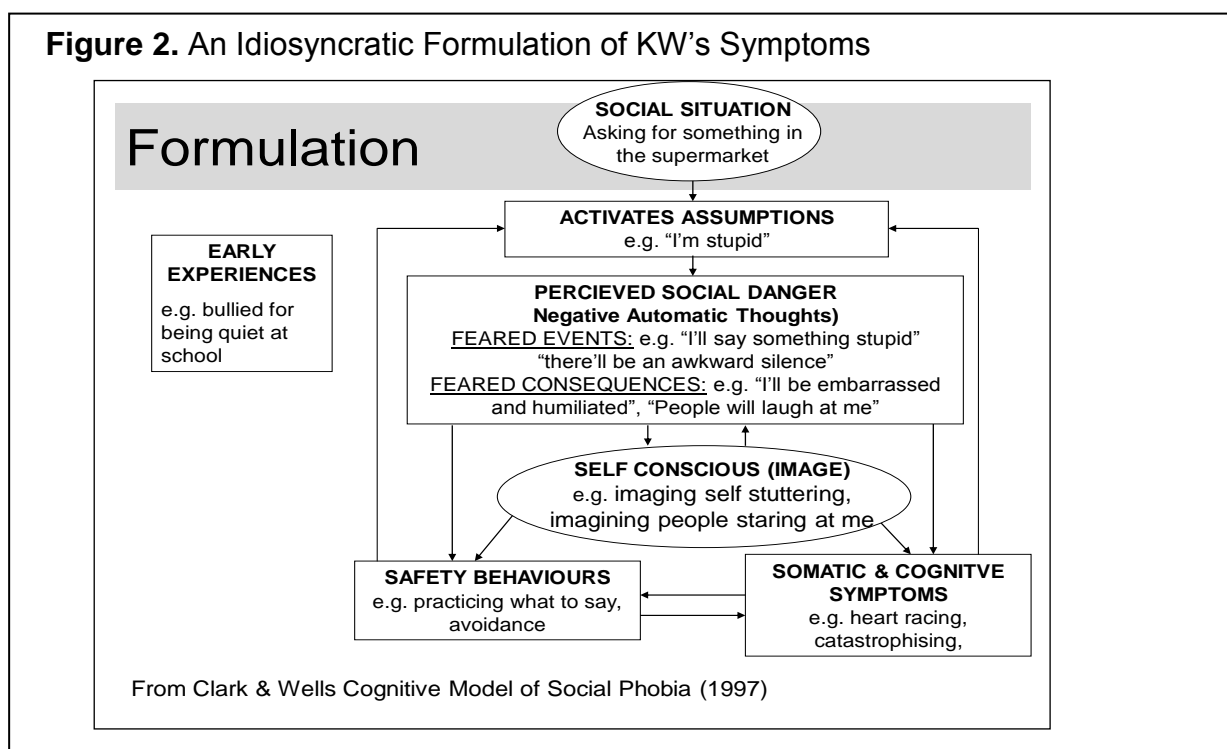
Re-assessment.

Re-assessment included establishing KW's concept of his current difficulties, his treatment goals, and his experience of previous therapy. KW also completed a number of outcome measures (detailed below). Several areas of difficulty were identified, for example; negative automatic thoughts, anticipatory and post-event processing, low self-esteem, and an internal focus of attention during anxiety-provoking situations. KW showed visible signs of anxiety during initial sessions, for example, stuttering and avoiding eye contact. KW initiated few questions himself, and answers were often short.

Re-formulation.

KW had been introduced to the Clark and Wells (1995) Cognitive Model of Social Phobia by his previous therapist and was able to demonstrate an understanding of the model. During initial sessions, a second model of self-esteem (Fennell, 1997) was considered as an alternative way of conceptualising KW's difficulties. This model explicitly acknowledges the role of early life experiences in the formation of social phobia (see Appendix D). However, while KW described difficulties with low self-esteem, and frequently referred to his history of having been bullied in initial sessions, he did not cite low-mood as of primary concern and identified entering

social situation as the primary goal he would like to focus on during sessions. Hence, due to this, his familiarity with the Clark & Wells model, and the similarities in intervention strategies for overcoming self-esteem and social phobia, it was agreed that continuing to use the Clark & Wells model would be appropriate in order to conceptualise KW's difficulties (see Figure 2 for KW's idiosyncratic formulation).



Goal Setting.

In his initial sessions KW identified feeling more comfortable in groups and focus on the worry that 'he looks a bit odd' as things he would like to work on in sessions. At week 6 these goals were reviewed and KW identified more specific goals that he would like to focus on (See Figure 3).

Figure 3. KW's Therapy Goals

DIFFICULTY ↓	1.	<i>Be able to ask for something in the supermarket</i>
	2.	<i>Interact with the neighbours rather than avoiding going outside when they are there</i>
	3.	<i>Telephone the council about a tree that needs removing</i>
	4.	<i>Telephone people/organisations (e.g. telephone British Gas to change the account holder name from my mum's to my own)</i>
	5.	<i>Go into small shops to ask for things (e.g. guitar strings)</i>

6.2 Sessions 5-10

Revisiting cognitive and behavioural aspects.

A combination of cognitive and behavioural strategies was used to address specific aspects identified by the Clark & Wells (2007) model. Broadly, we began by

addressing cognitive aspects such as ‘negative interpretation biases’, and strengthening KW’s competency using thought challenging techniques such as thought diaries (see Appendix E). Gradually behavioural experiments were introduced to test out KW’s predictions (see below).

Dealing with anticipatory and post-event processing.

This was addressed in a number of ways. For example, in earlier sessions, KW reported his doorbell had rung but he had been too nervous to open the door in case he said something stupid. We used a thought record sheet to challenge his negative interpretations and generated a number of predictions. During the following week, KW’s doorbell rang again. He was able to open the door. His negative predictions were disconfirmed. KW also noted a tendency to ruminate following events. Using examples of when he had and had not ruminated we weighed up the advantages and disadvantages of rumination. KW concluded that rumination was unhelpful and increased the likelihood that he would avoid feared situations. In addition he noted that when he entered his feared situations, the negative outcomes he predicted often did not occur.

Shift of attention.

This was not explicitly targeted in the current intervention as it was addressed by KW’s previous therapist. However the theme was re-visited when opportunities arose. For example, testing behavioural experiment predictions not only enabled evidence against KW’s negative predictions to be collected; it also encouraged KW to focus on external such as people’s facial expressions (“people will smile at me”) rather than internal cues.

Safety behaviours.

During the course of therapy, KW described a number of safety behaviours such as silently rehearsing conversations prior to speaking to avoid saying something ‘silly’ and staying in the house if his neighbours were outside to avoid speaking to them. Behavioural experiments were therefore set up to test these with belief prediction ratings taken before and after.

Dealing with conditional assumptions and beliefs.

A number of conditional assumptions and beliefs such as; “if people don’t like the same music as me they will bully me” and “I am an idiot” were identified. Thought records and behavioural experiments were used to provide counter evidence against these beliefs. Belief ratings were taken and reviewed on a session-by-session basis.

6.3 Sessions 11-13**Tools for the future.**

KW reported concerns that despite some improvements during sessions, he would not be able to continue progressing without the support of a therapist. We therefore dedicated some time towards summarising the techniques KW had learned. This was then provided as a written hand-out, with specific idiosyncratic examples for KW to refer to in the future.

Addressing endings.

It was explicitly acknowledged that endings would be difficult, due to a number of factors. The combination of low-self esteem and KW’s historical tendency to form strong attachments and dependency on others appeared to contribute to KW’s worry that he would be unable to overcome his difficulties without the support of therapy. Additionally, the end of therapy coincided with KW’s imminent discharge from the CMHT. Therefore a six-week follow-up session was arranged in an attempt to minimise his fears of abandonment and incompetence, and enable a review of his progress.

6.4 Additional Interventions

Several additional factors were helpful and/or identified as potential barriers to KW’s treatment. These were hence addressed explicitly in sessions.

Anxiety symptoms.

KW reported feelings of being ‘unable to relax’ following social interactions which he found worrying, and cited as a negative aspect of entering social situations. He was therefore provided with some tools, such as learning Progressive Muscle Relaxation, to help reduce these levels of anxiety. He also revised the attention training technique he had been taught by his previous therapist.

Hospital community centre.

During the course of therapy, KW was referred by his Care Co-ordinator to a local Community Centre which offered a number of groups and courses for individuals with common mental health difficulties. This served a number of functions: to enable KW to increase the number of meaningful and pleasurable activities in his life; allow increased opportunities for social contact; and show willing in relation to job-seeking. The last was necessary in order for KW continue receiving Benefits. KW was initially reluctant to attend the community centre due to thoughts such as 'others will judge me'. However, after using the thought challenging techniques he had learned, KW visited the centre. During his initial visit, KW experienced negative thoughts in relation to a group of men sitting in the waiting room (See Appendix F). The subsequent therapy session focused on challenging 'hot thoughts' such as 'people will bully me at the community centre' (of which KW was 80% sure) which initially led KW to decide he would not return to the Centre. KW decided to return to the centre, and a number of predictions (e.g. 'people will smile at me') were tested out across subsequent sessions in relation to the Community Centre.

Fostering a sense of ownership of sessions.

KW initially reported that he probably would not have attended sessions if he had not felt he had to in order to continue claiming benefits. We therefore worked on identifying the pros and cons of attending sessions, and re-visited his goals to ensure that he found them meaningful and desirable, rather than goals he thought he ought to achieve, or was being told to carry out. Homework tasks were also designed at several levels of difficulty in order that KW could choose what level he wished to attempt. This was to take account of KW's feelings that he was sometimes told to do behavioural tasks that he did not feel comfortable with. This led KW to worry he was not able to be assertive in communicating when he did not wish to carry out tasks. KW was also encouraged to help design experiments to enable him to feel that he was a collaborator in difficulty level settings.

6.5 Six-week Follow-up Session

In this session, KW's progress was reviewed, outcome measures re-evaluated and outstanding difficulties discussed.

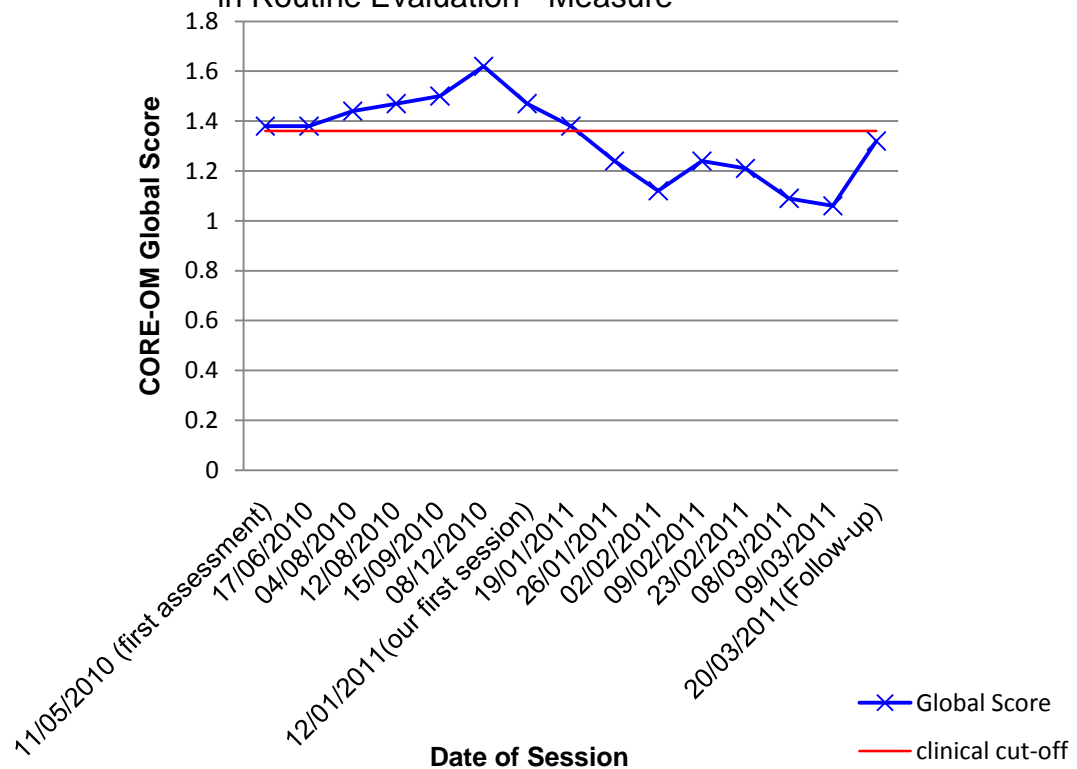
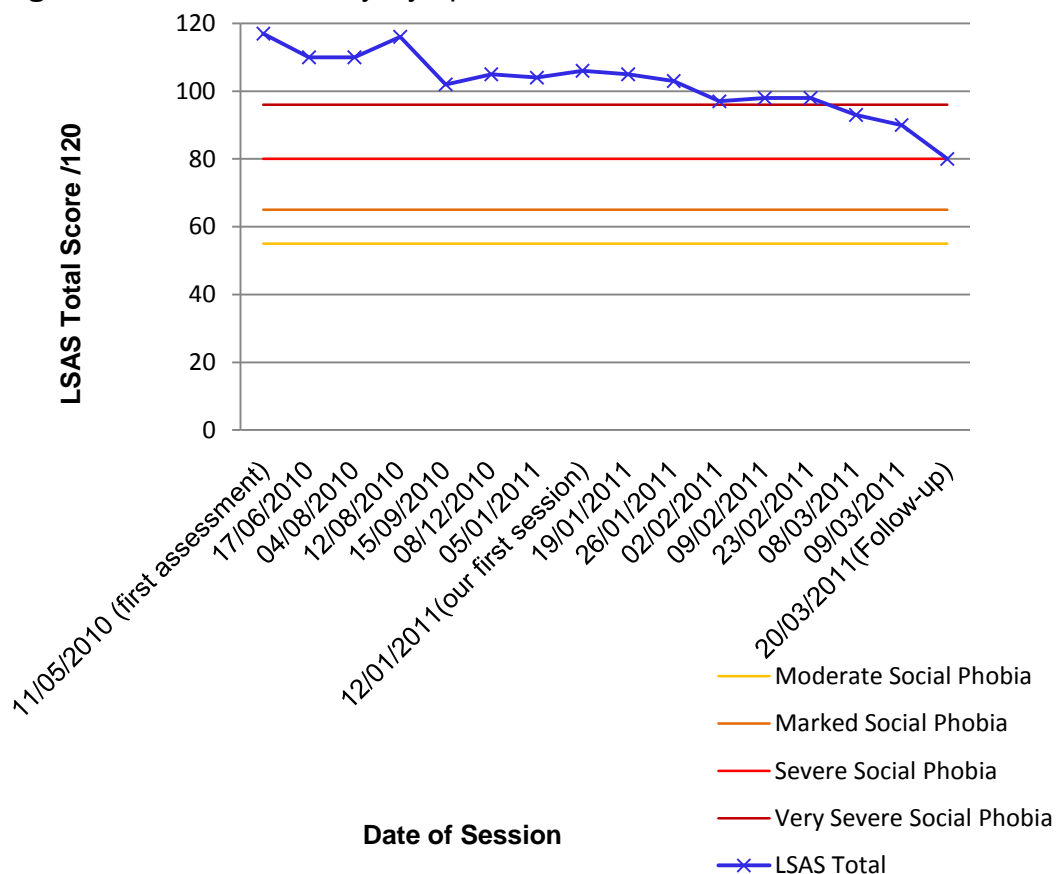
7. Outcome Measures

7.1 Clinical Outcome measures

KW completed two self-report measures regularly over the course of sessions. The Clinical Outcomes in Routine Evaluation Measure (CORE-OM) (Evans et al., 2000) is routinely used by the South London and Maudsley NHS trust and was used to assess KW's subjective well-being, functioning, response to problems and symptoms and risk of harm to self and others. In addition, the Liebowitz Social Anxiety Scale (LSAS) (Liebowitz, 1987) measured KW's social functioning. Measures were chosen according to their brevity, acceptability to clients, and experimental robustness (Baker, Heinrichs, Kim, & Hofmann 2002; Barkham et al., 2001; Fresco et al., 2001; Rytwinski et al., 2009).

CORE-OM can be reviewed in terms of global score, for which clinical cut-off is 1.36 (a lower score being non-significant), or with respect to individual domains. Thus, improvement on this measure would be indicated by a decrease in scores over time.

Total CORE-OM scores fell between the start and end of sessions to below clinical cut-off. There was a slight peak in scores at the beginning of February, and at the booster session (See Figure 4). Visual inspection of the data suggests there was no consistent pattern within any given sub-domain, however 'risk' remained consistently below cut-off across sessions, and the rise in overall scores at follow-up appear to be attributable in part to a decrease in client well-being (See Appendix B).

Figure 4. KW's Session Scores on the Clinical Outcomes in Routine Evaluation - Measure**Figure 5.** KW's Anxiety Symptom Scores Over Time

The LSAS may be evaluated in terms of overall total score (ranging from 0-120). Higher scores indicate a greater severity of symptoms (clinical cut-offs for moderate; marked; severe; and very severe being 55; 65; 80 and 96 consecutively). Additionally, scores may be sub-categorised into 'fear' and 'anxiety' domains.

LSAS scores showed a clear decline across sessions, falling from the 'very severe social phobia' to the 'severe social phobia' range. Again, for sessions at the start of February, scores increased slightly between sessions. In contrast to CORE-OM scores, LSAS scores had continued to decrease at the six-week follow-up session (See Figure 5). Despite the reduction, anxiety symptoms remained above the clinical cut-off.

7.2 Idiosyncratic Outcome Measures

Personal goals.

These were reviewed on a session-by-session basis and at follow-up. By the end of therapy KW had achieved all specific goals identified in session six (see Figure 3). In addition, at follow-up he reported he was attending three different activity groups at the hospital community centre and had actively sought to make conversation with a stranger in a café. KW also reported making plans to attend a photography course in a local college, and that he had been to a café with a member of the community centre. At follow-up, KW reported continued success with behavioural experiments for example, engaging with more activities at his community centre.

Belief-rating scales.

KW completed a number of belief-rating scales before and after behavioural experiments to test out his negative predictions. For example, the beliefs "people think I'm stupid" and that "I won't know what to say" fell from 90% to 40% and 100% to 0% consecutively after behavioural experiments. The specific worry "people will bully me at the community centre" fell from 80% to 0% and that "people will smile at me" rose from 0% to 100% across sessions.

8. Discussion

When he initially presented at the CMHT, KW was experiencing chronic and debilitating anxiety symptoms. Although previous sessions of CBT had worked to a degree, his socialisation to the Clark and Wells (1995) model, and shift on outcome measures remained slow. It was hypothesised that this may have been due to unsuccessful thought challenging and a lack of personal motivation to perform behavioural experiments. These issues were addressed in therapy and as KW's ability to effectively challenge his negative thoughts and predictions increased, and he began to view therapy and behavioural experiments as within his control, both clinical and idiosyncratic outcomes improved.

Whilst clinical outcome measures showed general improvements in scores across time, there was a period of two sessions when scores increased slightly mid-therapy. There are several possible explanations for this. For example, KW found his initial visit to the Community Centre difficult and this affected his interpretation of progress at the time. He was however successfully able to overcome his worries and return to the Centre, which may have influenced the improvement in symptoms in subsequent weeks.

At follow-up, KW's CORE-OM scores increased on all subscales except 'Risk'. However, his anxiety symptom scores continued to decrease, and self-reported exposure work expanded. The reasons for this disparity are unclear. Termination issues were of concern for KW, who stated in sessions that he was worried he would not be able to continue progressing without the support of the team. Worries about his imminent discharge may have been reflected in his scores. It may also have reflected that despite improvements in his ability to enter feared situations, KW continued to report low self-esteem.

9. Reflections

Working with KW was both challenging and rewarding, and it was useful to notice the change in emotions I experienced towards and about him as sessions progressed. Initially the therapeutic alliance felt somewhat 'fragile'; KW presented as anxious and uneasy in sessions, and the balance between client and therapist input felt unequal, which I found frustrating. However, as sessions progressed and KW gained confidence in his own abilities, and began to view therapy as his choice, rather than

something he was 'being made' to do, this frustration shifted, and I found myself feeling more warm and optimistic about KW's progress.

This case also highlights the importance of environmental factors when considering client's suitability for treatment. KW had suffered from social phobia since childhood, and would not have come to the attention of services had his main carer not passed away. He had 'learnt to live' with his social phobia until the age of 49, and had come to receive CBT because an employment assessment after her death had deemed he could only continue to receive benefits if he was to show efforts to make himself more employable. Hence, his original motivation for seeking CBT was not because he wanted it but because he felt he had to have it.

Working with KW has contributed to my professional development in a number of ways. For example, I have learnt the value in re-evaluating treatment plans and enabling client's to feel empowered and in control of their treatment. I also learned the value of supervision discussion in helping generate solutions to overcoming barriers to therapy.

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Appendix A. DSM-IV diagnostic criteria for Social Phobia**Diagnostic criteria for 300.23 Social Phobia**

A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing.

Note: In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.

B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed Panic Attack. Note: In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.

C. The person recognizes that the fear is excessive or unreasonable. Note: In children, this feature may be absent.

D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.

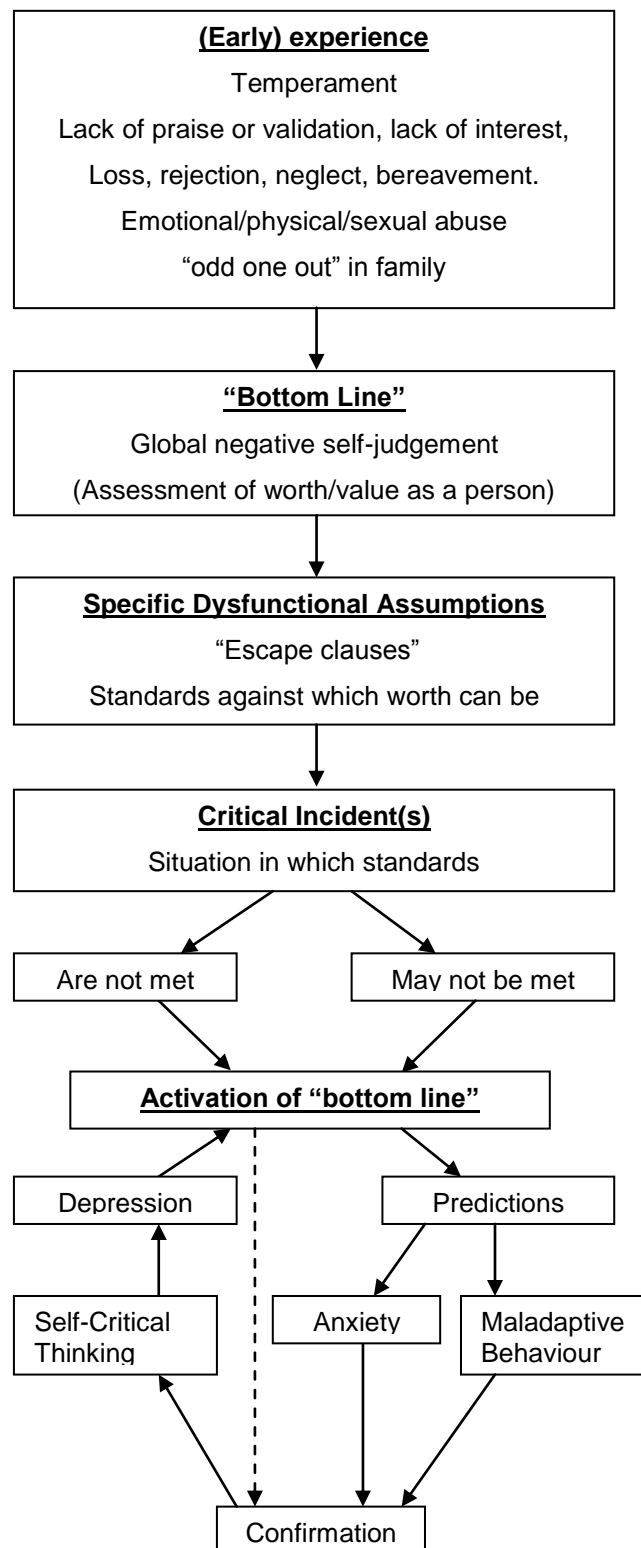
E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.

F. In individuals under age 18 years, the duration is at least 6 months.

G. The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Separation Anxiety Disorder, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, or Schizoid Personality Disorder).

H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson's disease, or exhibiting abnormal eating behavior in Anorexia Nervosa or Bulimia Nervosa.

Specify if: Generalized: if the fears include most social situations (also consider the additional diagnosis of Avoidant Personality Disorder)

Appendix B. A Cognitive Model Of Low Self-Esteem (from Fennell, 1997)

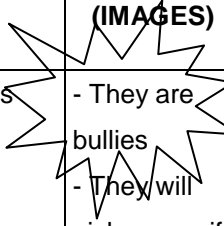
Appendix C. KW's CORE-OM Scores across Sessions

DATE OF SESSION	SUBTEST SCORES				Global Score
	Well Being	Problems or Symptoms	Functioning	Risk	
11/05/2010 Initial Assessment	2.5	1.5	1.5	0.17	1.38
17/06/2010	2	1.58	1.67	0	1.38
04/08/2010	2	1.83	1.5	0.17	1.44
12/08/2010	2	1.75	1.67	0.17	1.47
15/09/2010	2	1.92	1.5	0.33	1.5
08/12/2010 Our 1st Session	2.25	2.17	1.58	0.17	1.62
05/01/2011	<i>Missing</i>				
12/01/2011	2	2	1.55	0	1.47
19/01/2011	1.75	1.92	1.42	0	1.38
26/01/2011	1.5	1.67	1.33	0	1.24
02/02/2011	1.25	1.42	1.25	0.17	1.12
09/02/2011	1.75	1.67	1.25	0	1.24
23/02/2011	1.5	1.67	1.25	0	1.21
08/03/2011	1.75	1.25	1.25	0	1.09
09/03/2011	1.25	1.33	1.25	0	1.06
20/03/2011 Six Week Follow-up	2	1.58	1.5	0	1.32
CLINICAL CUT-OFF	1.37	1.44	1.29	0.43	1.36

Appendix D. KW's LSAS Scores across Sessions

DATE OF SESSION		SUBTEST SCORES			
		FEAR SUBSCALE		ANXIETY SUBSCALE	
		Social Interaction	Performance	Social Interaction	Performance
11/05/2010 Initial Assessment		30	26	29	28
17/06/2010		30	27	26	28
04/08/2010		30	28	27	26
12/08/2010		31	25	30	21
15/09/2010		30	25	23	24
08/12/2010 Our 1st Session		29	25	26	25
05/01/2011		29	26	26	24
12/01/2011		31	25	24	25
19/01/2011		32	25	22	26
26/01/2011		32	24	22	24
02/02/2011		28	25	22	23
09/02/2011		29	24	21	23
23/02/2011		31	24	22	21
08/03/2011		28	22	20	21
09/03/2011		28		21	19
20/03/2011 Six Week Follow-up		24	22	16	18

Appendix E. Thought Challenging Worksheet Example

SITUATION	MOODS	AUTOMATIC THOUGHTS (IMAGES)	EVIDENCE SUPPORTING THE HOT THOUGHT	EVIDENCE AGAINST THE HOT THOUGHT	ALTERNATIVE/ BALANCED THOUGHT	MOOD NOW
- Waiting in reception of community centre. - A group of 5 men I don't know are there too.	Anxious 95%	 - They are bullies - They will pick on me if I go back - My care-coordinator has set me up	- They are sitting in a group - They are physically well-built - One of them has a deep voice - They are talking about liking a singer I don't like	- They don't look in my direction - They don't refer to me	- Just because someone is physically well-built and talks about music I don't like, it doesn't make them a bully. Maybe they were just there to enjoy themselves and didn't even notice me.	Anxious 70%

Appendix F. An Example of an Idiosyncratic Behavioural Experiment**Asking for Something at the Supermarket****Predictions:**

1. **"They will think I'm an idiot"** (e.g. laugh/make a face) - 80% sure
2. **"There will be an awkward silence of at least 5 seconds"** - 90% sure
3. **"I will think of what to say"** - 10%

Behavioural Experiments:

Level 1: Ask for something really unusual a long way from where it is.

Level 2: Ask for something common a long way from where it is.

Level 3: Ask for something common when standing in front of it.

Outcomes:

Ned completed all three levels.

No one laughed and there were no awkward silences.

He reported finding it easier to ask each time and was surprised that he managed to think of something to say.

Case Study 2

Cognitive Behavioural Therapy for a 49 Year Old Man with
Panic Disorder

Supervised by: Dr. June Brown

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1. Abstract

JE, a 49 year old white British man, was referred to his local Community Mental Health Team to address panic and anxiety symptoms of recent onset. The present study describes our current understanding of panic disorder, and their application to this case. JE's difficulties were formulated using Clark's Panic Model. A cognitive behavioural therapy treatment plan was devised accordingly. JE's outcomes are presented and discussed.

2. Literature Review

2.1 A definition of 'Panic'

Panic attacks are a discrete period of intense fear or discomfort in which at least four symptoms develop abruptly, peaking within a few minutes (American Psychiatric Association, 1994). Symptoms include; chest pain, nausea, dizziness, confusion and fear of losing control (APA, 1994). Approximately 23% of the general population in the UK will experience a panic attack in their lifetime (Kessler et al., 2006). Although prevalence estimates vary (Eaton, Kessler, Wittchen, & Magee, 1994; Kessler et al., 2006), panic attacks typically begin in the 20s, are twice as likely in women as men, and are unrelated to ethnicity or economic background (APA, 2011).

The aetiology of panic is unknown. Biological factors, such as a genetic predisposition or neuro-chemical imbalance (e.g. Klein, 1993); social factors such as stressful life events; and psychological factors such as thinking in a way which exaggerates innocuous bodily sensations, have all been implicated as potential contributing factors to the onset of panic attacks (e.g. Pauls, Butcher, Crowe, & Noyes, 1980; Horesh, Amir, Kedem, Goldberger, & Kotler, 1997; Clark, 1986). Recent studies also suggest that cigarette smoking increases the risk of panic in young people (e.g. Goodwin, Lewinshohn, & Seeley, 2005).

2.2 Treatment approaches for Panic

Treatment approaches for panic vary depending on clinicians' understanding of the aetiology.

2.2.1 A neurochemical approach to treatment.

Various biological models of panic have been suggested. Some theorists propose that an imbalance of chemicals such as serotonin, norepinephrine and dopamine

which act as neurotransmitters may be responsible for panic attacks (Akiyoshi, 1999; Buttenschøn et al. 2011). Selective Serotonin Reuptake Inhibitors (SSRIs) and other anti-depressants, which change the balance of these chemicals, reduce the occurrence of panic attacks (e.g. Yevtushenko, Oros, & Reynolds, 2010). An alternative biological theory relates to the lower levels of Gamma Aminobutyric Acid (GABAA) in panic patients compared to controls. It is suggested that GABAA suppresses anxiety. Anti-anxiety medications enhance the function of GABAA receptors leading clients to feel calmer. (e.g. Insel et al., 1984) Other theories suggest that differences in metabolic processes in those with panic, for example relating to caffeine and nicotine, compared to controls may be important (e.g. Charney, Heninger, & Jatlow, 1985; Goodwin et al., 2005).

Neurochemical approaches draw on evidence such as the induction of panic attacks in panic patients but not controls by specific biological agents (e.g. Charney et al., 1985), and the occurrence of attacks during sleep, and seemingly 'out of the blue' feelings (see Nutt & Lawson, 1992, for a review).

2.2.2 A Cognitive Behavioural approach to treatment.

The cognitive theory of panic disorder posits that panic attacks result from a tendency to interpret various bodily sensations in a catastrophic way (Clark, 1986). It suggests that when attention is focused internally on bodily sensations, for example heart beat, or feelings of faintness, these sensations increase in intensity subjectively and/or objectively if the symptoms are perceived in a negative way. It further suggests that panic attacks may be maintained by maladaptive coping strategies, for example avoiding feared situations where panic attacks are thought likely to occur, and through the use of safety behaviours (Wells et al., 1995). For example, when someone begins to feel faint in a supermarket, they may lean against something or leave the shop. These actions prevent the individual from discovering that were they to refrain from using safety behaviours, feared outcomes may not occur, but rather their anxiety would plateau then decrease.

A number of clinical trials have demonstrated the efficacy of CBT for treating panic. For example, CBT has been found superior to Imipramine (Clark et al., 1994), supportive psychotherapy (Beck, Sokol, Clark, Berchick, & Wright, 1992) and applied relaxation (Clark et al., 1994). In addition, its low drop-out rate, and high patient

acceptability make it a viable option for the treatment of panic (Barlow, Gorman, Shear, & Woods, 2000).

3. Case Description

An initial assessment session was carried out in order to ascertain the main presenting problem and relevant background history. This included a combination of questionnaires (see 'assessment measures' section) and clinical interview. This information helped establish whether the DSM-IV diagnostic criteria for panic disorder were met. Differential diagnoses (including specific phobia, social phobia and OCD) were considered (Clark, 1986).

3.1 Reason for referral

JE, a 49 year old white British male, was referred to his local Community Mental Health Team (CMHT) in August 2010 to address anxiety symptoms of recent onset before onward referral to a trauma service for treatment of longer standing relationship difficulties attributed to childhood sexual abuse.

3.2 Presenting problem and history of complaint

JE reported his main difficulty as suffering from panic attacks. He said they began approximately 4 months previously, and that two had occurred in the past month. JE described a variety of settings in which the attacks occurred including; supermarkets, buses; and underground trains. JE reported several catastrophic interpretations of his panic attacks (e.g. "I'm going to collapse", "I'm going to die").

3.3 Personal and psychiatric history

JE described living alone in council tenancy. He did not currently work, having left his job as a manager in the NHS two months previously due to his mental health difficulties. He described finding work stressful and feeling different from others due to his academic background, having achieved 'unimpressive' exam results at school. He reported previously using work and drinking alcohol as a way of avoiding thinking about his difficulties.

JE reported a period of depression during his early 20s. He attributed this to resurfacing of memories of childhood abuse, perpetrated by his parents. He reported feeling suicidal and experiencing panic symptoms at the time.

3.4 Previous treatment

JE attended group therapy sessions at a CMHT in his early twenties. He describes dropping out of these as he did not like staff attitudes towards service users. JE also received fortnightly counselling at his GP surgery between 2008 and 2009 which he reported helped him express his emotions and become more flexible in his thinking styles. However, he said after each session he experienced 2-3 days of feeling very low and scared, which led him to dread future sessions.

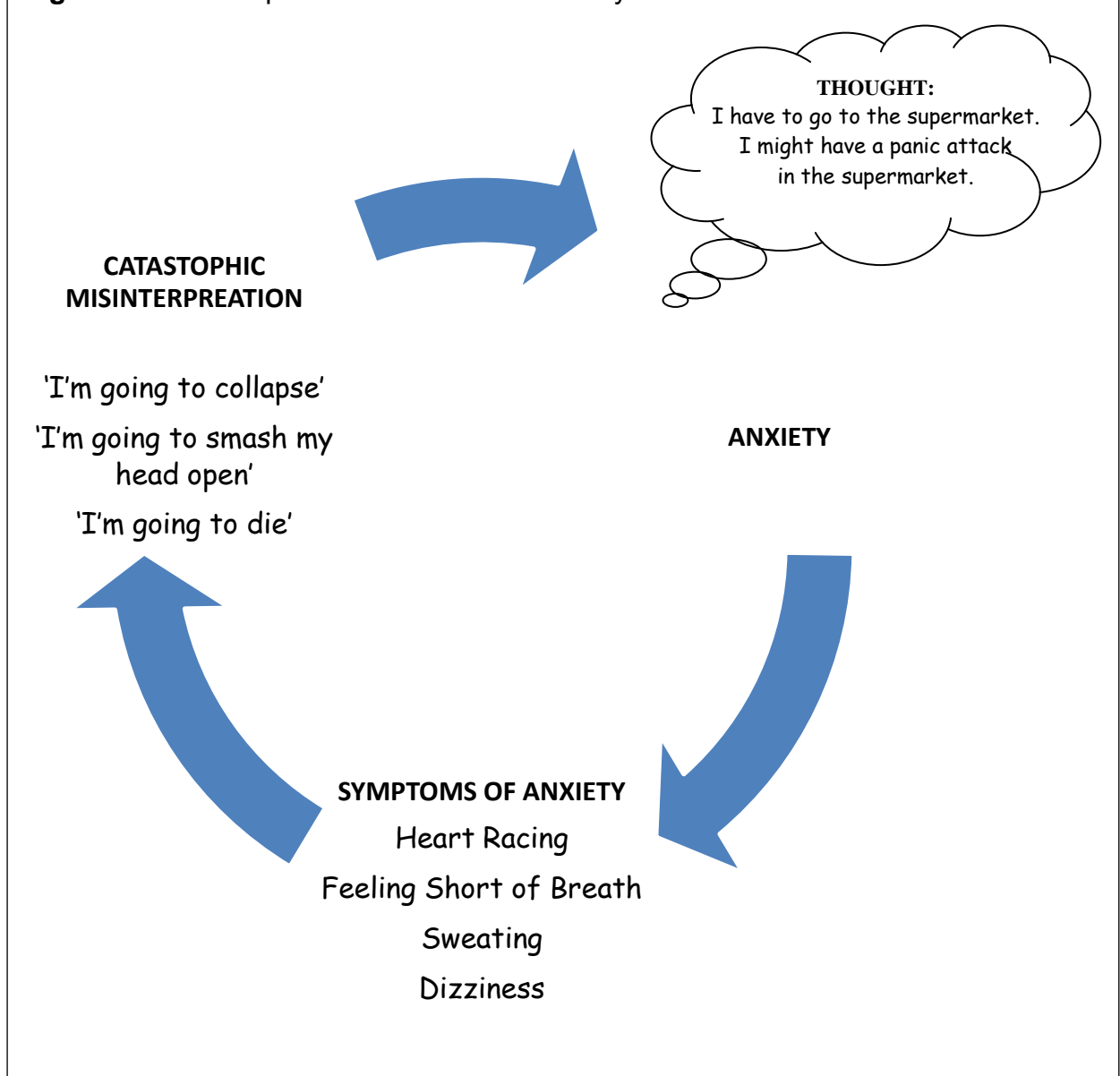
4. Aims of Study

JE identified his goals for the current therapy as a reduction in the frequency of his panic attacks and his general levels of anxiety. The current study was hence divided into two parts: Firstly, it aimed to reduce the frequency of JE's panic attacks to enable him to enter feared situations in a less restricted manner. Secondly, it sought to enable JE to feel lower levels of anxiety generally.

5. Formulation and model

It was hypothesised that JE's catastrophic misinterpretations about the significance of physiological symptoms were leading to the formation and maintenance of his panic attacks. Therefore, it was predicted that challenging JE's catastrophic misinterpretations and enabling him to reach a less worrying conclusion about the nature of his physiological symptoms would lead to a reduction in panic attacks. It was hypothesised that JE's general high levels of anxiety were being maintained by ineffective or non-existent anxiety management and coping strategies, and that therefore providing JE with relevant psycho-education and therapeutic tools to help manage his anxiety would lead to improvement.

JE described his panic attacks in a way which is consistent with Clark's CBT model of panic; feeling anxious in certain situations, noticing physical sensations such as dizziness and blurred vision, and subsequently catastrophising thoughts about the meaning of these. He also described a variety of avoidance and safety behaviours such as only entering shops at certain times and escaping situations at the onset of anxiety symptoms. It was hence decided to formulate and treat JE's panic attacks accordingly (See Figure 1 for an idiosyncratic formulation of JE's vicious cycle, adapted from Clark's cognitive model of panic, 1986).

Figure 1: An example of one of JE's Vicious Cycles

6. Design

JE was seen for a course of 10 weekly CBT sessions. Initial sessions were designed in accordance with Clark's model of Panic, with later sessions directed at improving JE's anxiety management techniques. The final session was reserved for a revision of the components of JE's therapy and discussion of a personalised 'Staying Well Plan' to minimise risk of relapse.

7. Intervention

7.1 Sessions 1-2: Socialising to the model

Initial sessions focused on psycho-education about panic. JE was provided with an introduction to the nature of panic and gradually introduced to the 'vicious cycle'

using his own personal examples. Through discussion, JE was able to identify his catastrophic interpretations of bodily sensations, for example 'I will collapse and hit my head', 'These attacks are a sign there's something physically wrong with me and I might die'. He was encouraged to complete a Panic Diary for homework detailing any incidents of panic and the thoughts associated with these.

7.2 Sessions 2-3: Exploring alternatives

Through discussion, we began to examine evidence for and against JE's panic beliefs. Tentatively we explored alternative beliefs (see Appendix for examples). In addition to discussion, in-session behavioural experiments, such as a paired-word association task were used to add weight to alternative hypotheses.

Re-evaluating old evidence.

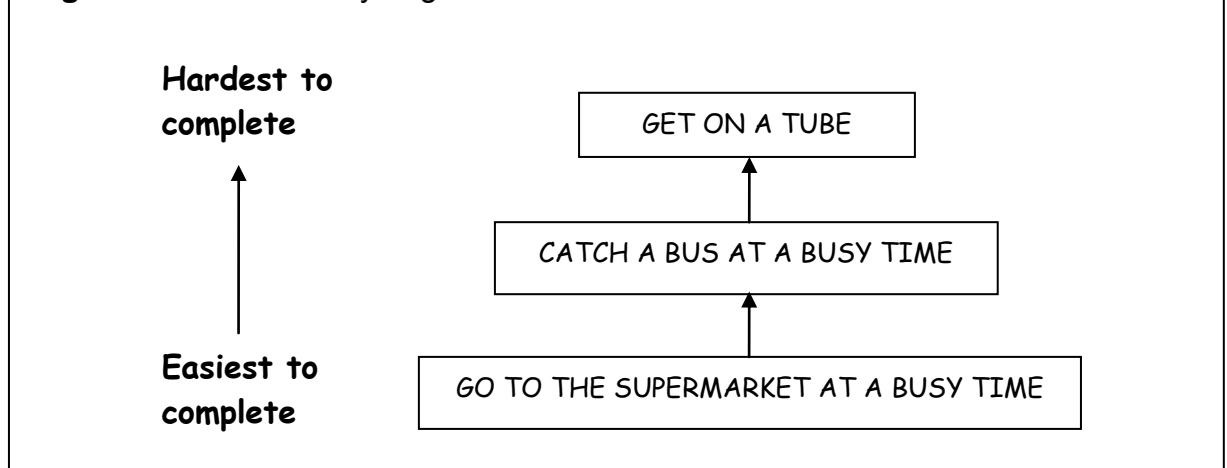
We also used examples of old evidence to re-evaluate JE's beliefs. For example, he recalled an occasion during a panic attack in a supermarket when a lady had started screaming. His panic attack had stopped. Similarly he described how during a panic attack while cooking Christmas Dinner noticing a tea-towel had caught fire. Again JE's panic attack ceased. JE concluded that being distracted from his thoughts had caused the sensations to stop, and reported that this added support for the cognitive model of panic. He also agreed that the panic attacks were more likely to occur when he was alone, and preceding events which he found stressful. This added weight to his evidence against a physical cause of his panic.

Safety behaviours.

We also began to identify JE's safety behaviours and avoidance strategies. For example, JE reported he restricted the hours in which he visited supermarkets and caught buses as he feared if there were many people he would be more likely to have a panic attack. He avoided tube trains entirely, and described a number of safety behaviours such as walking fast and planning his route in supermarkets in order to decrease the duration of time inside.

Goal setting.

JE was also encouraged to generate a hierarchy of goals (see *Figure 2*) detailing situations he was unable to enter due to fear of having a panic attack in order of difficulty.

Figure 2. JE's hierarchy of goals

7.3 Sessions 4-8: Behavioural experiments

Behavioural experiments were used to test JE's beliefs in action. As emphasised in the Panic model, these play a central role in treatment, and should be closely integrated with discussion during the sessions (Clark, 1986). We used the experiments to collect new, experiential information that was relevant to JE's beliefs. Before and after each behavioural experiment, JE completed a behavioural experiment worksheet to ensure that he understood the rationale for each experiment, and was able to test the validity of his predictions.

Experiments were further consolidated with homework tasks. For example, JE said he shopped very early to avoid busy supermarkets. He said this was restrictive, but that he feared having a panic attack in queues. He therefore practiced visiting the supermarket an hour later each day, testing out his feared predictions. After practicing for two weeks, and finding he did not experience what he feared, he reported he was able to visit the supermarket at any time.

He also generated his own behavioural experiment while shopping with a friend. JE noticed that he had been avoiding walking into crowds by crossing the street. He had predicted that had he stayed on the same side of the road he would have a panic attack and faint. JE said he was able to test this and found that when he did not cross the road, although his anxiety increased, symptoms plateaued and he did not faint.

7.4 Sessions 8-9: General anxiety management

Despite a reduction in panic attacks, JE said he continued to feel anxious and depressed. He found this distressing and said it impacted on his daily functioning. JE attributed the main cause of his depression and anxiety as due to unresolved relationship difficulties. In the light of the planned onward referral for JE to receive Cognitive Analytic Therapy (CAT) to address these, and the time-limitations of therapy, it was agreed that the current intervention would provide some basic self-help strategies for JE to manage his symptoms until CAT commenced. Hence, in later sessions we introduced some basic coping strategies. These included applied muscle relaxation training and controlled breathing in addition to basic psycho-education about depression and activity scheduling.

7.5 Session 10: Relapse prevention

As recommended by Clark (1986), the final session was used to consolidate the Panic model, and outline the main beliefs and safety behaviours JE had worked on in sessions. Evidence JE had generated against his catastrophic misinterpretations were summarised, and a detailed idiosyncratic 'Staying Well Plan' was provided. In addition, potential future triggers were identified (for example, spending time with family), and the possible recurrence of symptoms normalised. The limited success of anxiety reduction strategies and increase in low mood were discussed with reference to JE's onward referral for Cognitive Analytic Therapy.

8. Assessment Measures

The Panic Rating Scale (PRS) (Wells, 1997).

This self-report questionnaire assesses the severity, frequency and duration of panic symptoms 'over the past two weeks'. It is brief and acceptable to clients and is recommended for use by clinicians in monitoring client progress (Wells, 1997).

The Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983).

This 14-item self-report questionnaire is used to assess symptoms of anxiety and depression. It has good reliability and validity (Bjelland, Dahl, Haug, & Neckelmann, 2002). It was originally designed for use in hospital settings, so that the possible impact of physical symptoms which result from co-morbid physical conditions is accounted for (Zigmond & Snaith, 1983). Hence, it was used as an additional tool in measuring non-physical symptoms of anxiety.

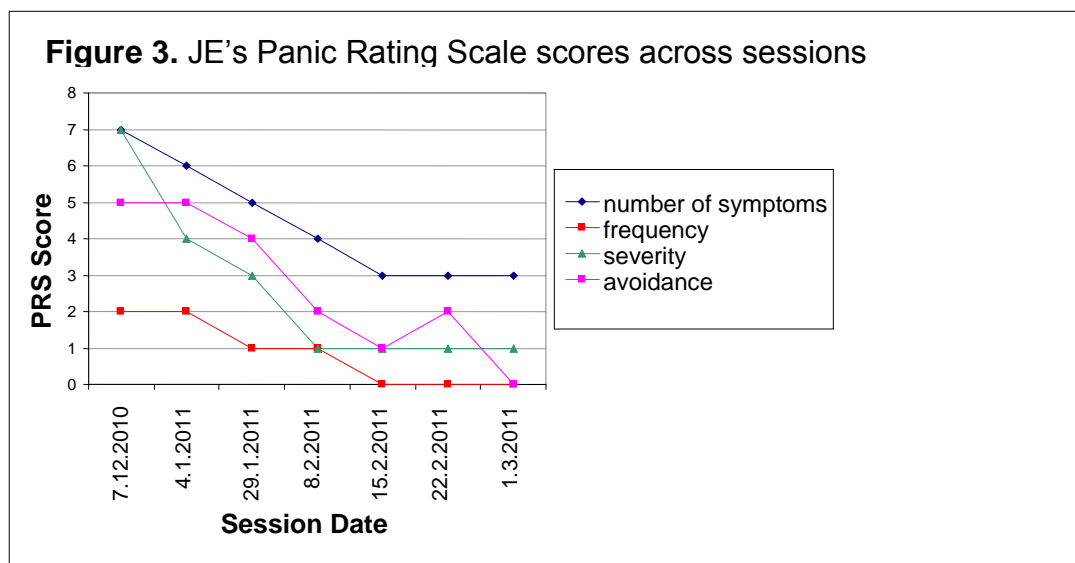
CORE-OM (Evans et al., 2000).

JE completed two self-report measures at intervals over the course of sessions. The Clinical Outcomes in Routine Evaluation Measure (CORE-OM) (Evans et al., 2000) is routinely used by the South London and Maudsley NHS trust to assess clients' subjective well-being, functioning, response to problems and symptoms and risk of harm to self and others. It has good reliability and validity and is acceptable to clients (Barkham et al., 2001).

9. Outcomes

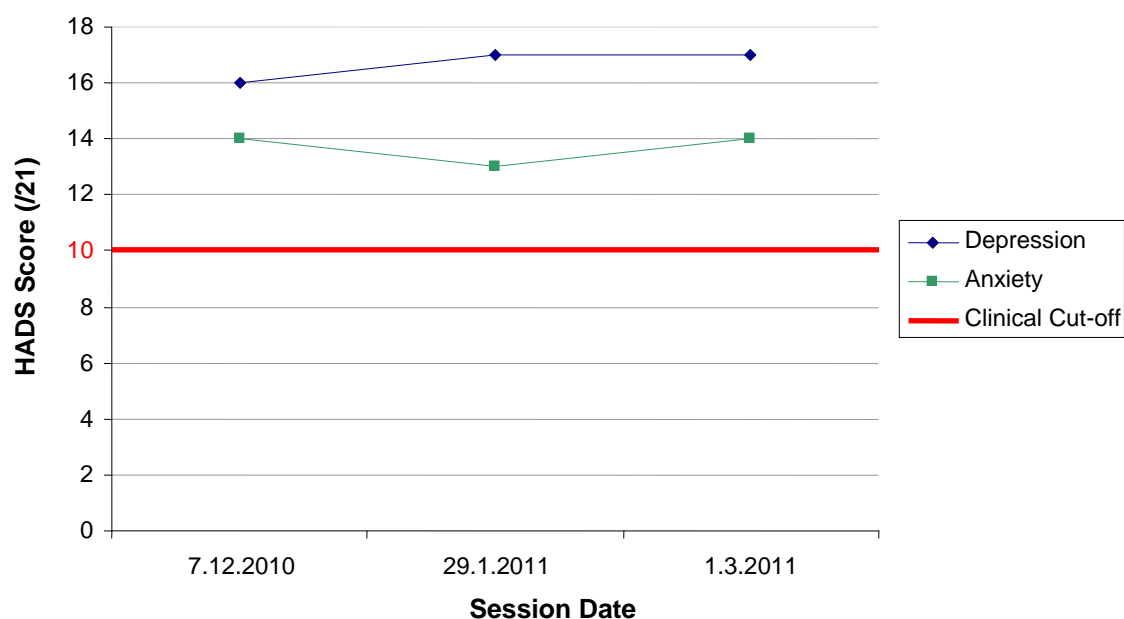
The Panic Rating Scale.

Over the course of treatment, the number of panic attacks experienced by JE fell from an average of one per week to zero. The number, frequency and severity of panic symptoms decreased across sessions, apart from a small increase in 'avoidance' on 22nd February 2011 (see Figure 3).

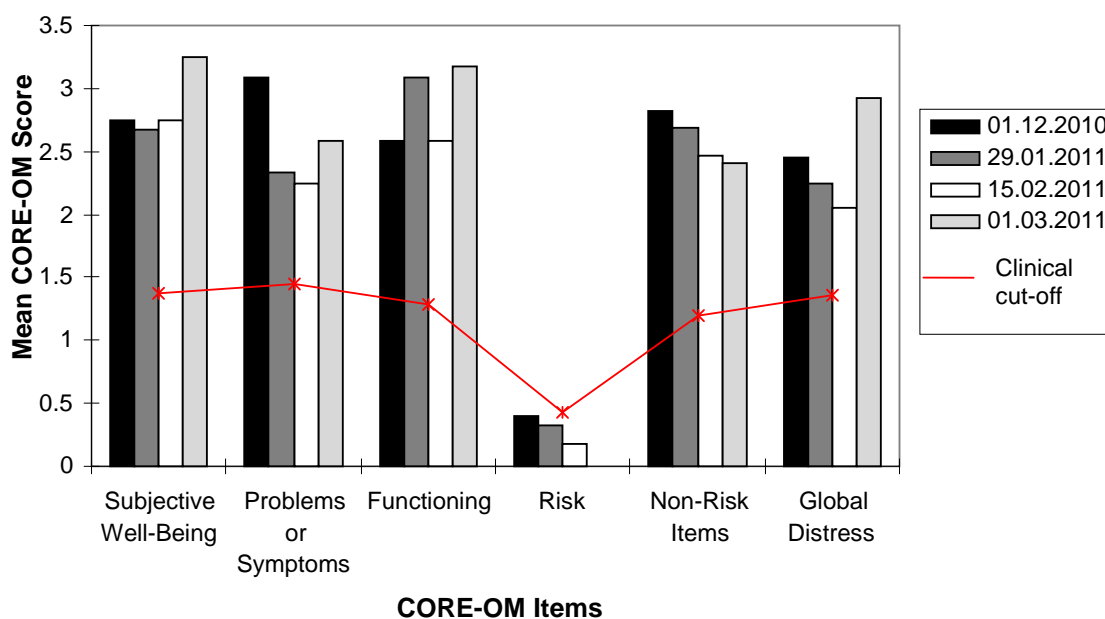


Hospital Anxiety and Depression Scale Scores.

Visual inspection of the data shows an increase in depression scores between initial and mid- sessions. Scores remained stable between mid- and final-sessions. While anxiety symptoms fell at mid-treatment, at session termination they had returned to baseline levels. Both remained above clinical cut-off at the end of treatment (see Figure 4).

Figure 4. JE's Hospital Anxiety and Depression Scale scores across sessions**CORE-OM.**

JE's CORE-OM scores did not show a consistent pattern across items. All but the 'Risk' items remained above clinical cut-off across treatment sessions, and the final session showed elevated scores on all items except 'non-risk items'. If the final session is excluded, JE's scores on 'problems or symptoms', 'risk' 'non risk items' and 'global distress' showed a trend to decrease over the course of sessions (see Figure 5).

Figure 5. JE's Clinical Outcome in Routine Evaluation scores across sessions

10. Discussion

In line with the literature, Clark's 1986, Panic Model informed an intervention which was successful in reducing the number, duration, frequency and intensity of panic symptoms. JE also reported that he experienced no full-blown panic attacks over the last four weeks of sessions, compared to an average of two per week in initial sessions. Interestingly, between 15th February 2011 and 22nd February 2011, JE was set the homework task of taking the tube. He avoided doing this, he reported he did not need or want to catch a tube and did not have enough money that week. This may have contributed to his elevated 'avoidance' score at the time.

A second aim was to address JE's general levels of anxiety. This phase of the study was less successful. There was no clinically significant change in JE's general well-being, and anxiety and depression levels remained clinically significant at the end of treatment. There are a number of possible explanations for this. Prior to starting the current course of treatment, JE had already been identified by his CMHT as a candidate for onward referral to a local Trauma Service for Cognitive Analytic Therapy due to longstanding relationship difficulties. Hence, there was a conscious decision not to address these in the current study. There was a clear reduction in panic as a result of the very focussed CBT treatment but an increase in depression, as the causal problem may not have been targeted in therapy.

Additionally, JE reported that as he had come to realise that his panic attacks were not due to something physically wrong with him, he had begun to view himself as a failure, responsible for his own symptoms. Although these cognitions were explicitly addressed in sessions using thought challenging, they were still evident in our final session. JE also reported that spending less time on planning his day to avoid feared situations, and worrying about preventing panic attacks had allowed him more time to ruminate on negative thoughts. Further, JE was not always reliable in completing homework designed to help him reduce his general levels of anxiety. For example, despite a drop in self-reported anxiety symptoms following listening to a relaxation CD, JE reported that he did not enjoy listening to a relaxation CD and could not find the time to do so. Similarly, he did not complete a mood diary as he had "felt low all week and didn't really leave the house".

A further possible contributor to JE's low outcome scores was that his final session came the day after a meeting regarding job seeking. JE reported finding the meeting stressful, and that he had felt angry and experienced anxiety symptoms shortly after. Hence, this may also have contributed to his elevated CORE-OM scores on 'global distress', 'problems/symptoms' and 'functioning' in the final session.

In conclusion, Clark's, 1986, Panic Model, appears to have been successful in reducing panic symptoms in the current case study but its effects did not generalise. In contrast, general levels of anxiety and depression remained high. This may have been due to a number of factors and highlights the limitations associated with a time-limited intervention targeted at what may not have been a causal contributor in JE's difficulties.

11. Reflections

Working with JE was both challenging and rewarding. As a new trainee, taking JE to a supermarket for the first time was the first behavioural experiment I had performed and it felt non-collaborative; he was out of his comfort zone and clearly anxious. Supervision was extremely helpful in aiding my reframing of this – I was provoking short-term anxiety in my client, but it was for a long-term gain. Also, although it felt uncomfortable for both clinician and client, JE was able to drop many of his safety behaviours and feel a sense of achievement afterwards.

Working with JE also highlighted the importance of 'checking-in' with clients' understanding. For example, JE often forgot what we had worked on between sessions. This encouraged me to think about ways of helping JE retain information. For example, providing written session summaries, and encouraging more behavioural experiments as JE reported these were more salient for him than 'academic discussions' about his symptoms.

Another useful lesson for me as a therapist is to acknowledge practical barriers to behavioural experiments. JE did not come to one session and I worried that this was a sign he was disengaging. However, after some time into the next session, JE explained that he had not had enough money to make the journey and had been too embarrassed to tell me. This was also a barrier for him doing homework assignments when he could not be reimbursed for his journeys. This is a lesson I

can learn from, for example, checking with future clients that they can afford to do homework, and being explicit about services' reimbursement policies.

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Appendix

JE's examples of evidence for and against catastrophic cognitions.

THEORY A	THEORY B
The panic symptoms are a sign that there is something physically wrong with me and if I do not prevent them I will collapse which may result in a number of catastrophes such as me hitting my head or getting run-over.	The panic symptoms are due to focusing on normal physical sensations, which may be due to many different causes such as walking fast, holding my breath, feeling anxious. I interpret these as a sign that something is physically wrong with me.
EVIDENCE	EVIDENCE
They seem to just come out of the blue – <i>but, sometimes when I think about it, I realise I was anxious in the situation e.g. walking fast in the supermarket, holding my breath on the tube, which might have induced my symptoms.</i>	When there's a distraction my panic symptoms go away. <i>For example in the supermarket, someone started screaming and my panic symptoms went away, and at Christmas, I burnt my arm on the oven and my panic attack stopped. If it was a sign of physical illness, distraction wouldn't stop my symptoms.</i>
I never used to get panic attacks – <i>but, I have had the same physical sensations in the past, I just put them down to stress.</i>	The same physical sensations can be induced e.g. by running, focusing on 'worry words', holding your breath. <i>So maybe it is more about how I interpret them as signs of danger.</i>
I've collapsed before outside a shop when I was having a panic attack – <i>but, when I think about it, I didn't actually faint, I sat down because I felt faint, maybe I wouldn't have fainted if I hadn't sat down.</i>	
IF IT'S TRUE, WHAT SHOULD I DO	
Be even more careful e.g. never leave the house, wear a crash helmet all the time, have 999 on speed-dial in my pocket	Continue going into feared situations to gradually learn that they will not lead to me collapsing or dying.
	Drop my safety behaviours

Case Study 3

Assessment of Autism Spectrum Disorder in a 17-year-old girl

Supervised by: Dr. Janne Karpf

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1. Abstract

The current study summarises the formulation and assessment of a 17 year old girl with symptoms of anxiety and depression, and possible Autism Spectrum Disorder (ASD). The literature regarding current understanding of ASD and co-morbid psychiatric disorders is reviewed. Formulation, assessment, and recommendations are then described and discussed.

2. Introduction

2.1 Autism Spectrum Disorders

Autism Spectrum Disorders (ASDs) refer to a range of pervasive developmental disorders including autistic disorder, Asperger's Syndrome, and pervasive developmental disorder—not otherwise specified (American Psychiatric Association, 2000; Johnson et al., 2007). Features encompass difficulties in three main areas; social interaction; communication; and restricted interests and repetitive behaviours (Bailey, Phillips, & Rutter, 1996). For example, limited eye-contact, decreased social reciprocity, stereotyped or repetitive use of language, and restricted patterns of interest are common features in ASDs (APA, 2000). The presence and intensity of symptoms for individuals vary hugely, and there may be several additional subtypes of the disorder (Johnson et al., 2007). ASD is highly heritable, and while interventions to increase individuals' functioning improve and develop, no biological treatment to ameliorate all symptoms currently exists (Levy, Mandell, & Schultz, 2009). A minority of individuals with ASD may lose the diagnosis, however for the majority the disorder is thought to be lifelong (Fein et al., 2013; Levy et al., 2009). While some individuals may be relatively unimpaired by their symptoms, for others, level of functioning and quality of life may be severely affected, and help and support from specialist services may be required (National Autistic Society, 2012).

Prevalence estimates for ASDs vary depending on factors such as: methodology; sample; and diagnostic category used (Mattila et al., 2011). Estimates over the last 20 years in the USA and Europe vary between five and 73 per 10 000 children (Levy et al., 2009). Estimates are increasing (Ashwell, 2009; Levy et al., 2009). Rather than true changes in community prevalence, this may reflect factors such as increased public awareness, and policy and practice change (Levy et al., 2009).

A number of methods may be used in order to assess ASDs. Typically, a combination of semi-structured interviews, clinical observation and assessments are used for diagnosis. In addition, neuropsychological testing is used to provide a detailed profile of individuals' cognitive strengths and weaknesses (Toth & King, 2008). The latter may be helpful in formulating and treatment planning but are not in themselves diagnostic.

While there is some evidence that rates of ASD may not differ significantly between males and females (Carter et al., 2007), differences in symptom severity may contribute to ASD being missed in females (Mandy et al., 2012). Although findings in the literature vary, there is some evidence that females may have less repetitive stereotyped behaviour and social and communication impairment, but greater emotional difficulties compared to males (Mandy et al., 2012). Due to these factors, females with ASD may be less frequently identified or receive a delayed diagnosis (Mandy et al., 2012).

2.2 ASD and psychiatric co-morbidities

In addition to social and cognitive difficulties, psychiatric co-morbidities, particularly anxiety and depression, are common in children and adolescents with ASD (e.g. McPheeters, Davis, Navarre, & Scott, 2011; Ozsivadjian & Knott, 2011; Simonoff et al., 2008). For example, Simonoff et al., found of a sample of 112 10–14 year olds with ASDs, 70% had at least one comorbid disorder, 41% had two or more. It is often these co-morbid difficulties rather than the core features of autism that are reported to cause distress and impairment (Ozsivadjian & Knott, 2011), may lead to an increase in maladaptive behaviours (Stewart, Barnard, Pearson, Hasan, & O'Brien, 2006), and exacerbate core deficits of ASD (Brereton, Tonge, & Einfeld, 2006). The relationship between anxiety, depression and ASD may be complex. For example, having at least one friend protects against depression and anxiety in typically developing children (Ladd, 1990). In contrast, greater ASD severity has been found to associate with less anxiety and depression and fewer, and/or poorer quality reciprocal friendships (Mazurek & Kanne, 2010).

Individuals with co-occurring ASD and anxiety problems can present diagnostic challenges. For example, symptom overlap, such as avoidance of and anxiety in

social situations, means care in assessment is necessary (Bastiaansen et al., 2010; Tyson & Cruess, 2012). There is some evidence that adolescents with ASD may under-report anxiety symptoms in contrast to their parents, perhaps due to lack of insight or unwillingness to disclose symptoms (White, Schry, & Maddox, 2012).

There is growing evidence for the discriminant validity of anxiety measures such as the Short Mood and Feelings Questionnaire, (Angold et al., 1995), and measures used to inform a diagnosis of autism such as the Autism Diagnostic Observation Schedule, (Lord, Rutter, DiLavore, & Risi, 1999); and verbal IQ determined from subtests of the Wechsler Abbreviated Scale of Intelligence, (Wechsler, 1999), (White et al., 2012).

The most common co-morbid psychiatric disorder is social anxiety (Simonoff et al., 2008). There is some evidence that females with ASD are more commonly affected by anxiety than males (Hartley & Sikora, 2009). Mood disorders such as bipolar disorder and depression also frequently co-occur in adolescents with ASD (Ghaziuddin, Ghaziuddin, & Greden, 2002; Munosue et al., 2008).

The ability to accurately diagnose ASD and co-morbid anxiety symptoms may be impaired by diagnostic-overshadowing (a failure to diagnose mental health problems in the presence of intellectual disabilities) and difficulties for individuals with intellectual disabilities in reporting symptoms of mental health problems (Reaven, 2011). Given the negative implications of ASD with co-morbid psychiatric disorders, for example, with respect to decreased functioning and increased service utilization (Simonoff et al., 2008), and findings that it may be possible to ameliorate the symptoms of both (e.g. Reaven, Blakeley-Smith, Culhane-Shelburne, & Hepburn 2012; Ozivadjian & Knott, 2011), accurate assessment and identification of these disorders is crucial to help ensure individuals' needs are met (White et al., 2012).

3. Case Description

CS, a 17-year-old Black Caribbean girl was referred to the Autism and Related Disorders (ARD) Team by a local Child and Adolescent Mental Health Service (CAMHS). They reported CS's main difficulties were with forming and maintaining social relationships, feeling lonely and frustrated, and being empathetic towards

others. This was in the context of a current risk of sexual exploitation, and concerns that CS may become institutionalised in adult services. She also had a history of anxiety and mood problems (see below).

The reason for referral was to address the following questions:

- 1) Does CS have an undiagnosed Autism Spectrum Disorder?*
- 2) Does CS have a mood or anxiety disorder?*
- 3) Does CS have both ASD and a mood or anxiety disorder?*

4. Assessment and outcomes

CS's assessment was multidisciplinary in nature. The assessment was designed to address various aspects of CS's abilities and functioning relevant to the referral questions.

Psychology involvement included;

1. Gathering of relevant background information prior to meeting client
2. Behavioural Observations
3. Cognitive Functioning
 - Wechsler Abbreviated Scale of Intelligence (WASI)
4. Educational attainment skills
 - Subtests from the Wechsler Individual Achievement Test, second UK edition (WIAT-II)
5. Emotional and Behavioural Functioning
 - Mood and Feelings Questionnaire (MFQ)
 - Screen for Child Anxiety Related Disorders (SCARED)

In addition, a multidisciplinary team assessment comprising of the Autism Diagnostic Interview-Revised (ADI-R) and Autism Diagnostic Observation Schedule (ADOS) – Module 4 were completed.

For the purpose of the current study, assessment and outcomes are discussed together for each section of the assessment. An overall discussion then summarises the findings.

4.1 Background information

Family history.

CS's parents divorced when CS was four years old. She saw her mother frequently and her two older sisters occasionally. She was not in contact with her father, who was described in notes as 'a bit like' CS (with regard to inflexibility in routines). CS lived alone in supported hostel accommodation when she was referred to the ARD team.

Previous involvement with services.

Between 2007 and her referral to the ARD team in 2011, CS had extensive involvement with other services including her local GP, Accident and Emergency Department (3 occasions, for suicidal intent, and actual suicide attempts), her local Child and Adolescent Mental Health Service (four occasions), and a national and specialist mood and anxiety team (where she received seven sessions of CBT for anxiety). CS was also referred to three specialist teams: an Autism and Neurodevelopmental Disorders Service; an Early Intervention (for psychosis) Service; and a Dialectical Behavioural Therapy service. Each concluded that CS did not meet eligibility criterion for their services. In addition, there was evidence that previous courses of 'generic therapy' had been unsuccessful in helping CS.

Education.

Documents indicated that CS was bullied at primary school, aged 9. She left school in summer 2010 obtaining 3 GCSEs. In our initial assessment, CS reported that she was studying a Beauty Course at her local training college. However, she left during the course of assessment sessions due to a 'disagreement with staff'.

Interpretation

Some aspects of CS's background information were suggestive of possible ASD features. For example: difficulties with social interaction and possibly inherited rigidity are in keeping with common symptoms (Levy et al., 2009). However, these features in isolation are not sufficient to warrant a diagnosis. For example, difficulties with social interaction may also be indicative of anxiety disorders such as social phobia (White et al., 20012), and previous involvement with services noted the

presence of likely mood and anxiety disorders. Similarly difficulties with educational attainment are not uncommon with children with ASDs, (Rao, Beidel, & Murray, 2008). When combined with anxiety and depression, parents report increased concern about academic progress and bullying (McPheeters et al., 2011), both relevant in CS's case. In addition, that difficulties only became problematic in CS's teenage years may reflect an increase in task demands associated with changes in routine and increases in independence at this age, common for higher functioning individuals with ASD (Mattila et al., 2011; Dickerson Mayes et al., 2009).

4.2 Behavioural observations

CS arrived for her appointment approximately 20 minutes late, which she did not acknowledge when met by psychologists. She maintained good attention throughout the 1.5 hour psychology session, and had no observed language difficulties. Additionally, no unusual behaviours, tics or mannerisms were noted. However, CS had limited use of eye-contact and facial expressions and did not use any other non-verbal gestures to communicate.

Interpretation

Some features of CS's behaviour were not typical of ASD; for example, her good attention and language skills. Lack of eye-contact and facial expressions are both common features of ASD (APA, 2000). However, they may also reflect other difficulties such as anxiety and low mood that are not reflective of ASD. Similarly, CS's apparent lack of social rules in acknowledging her lateness to the psychologists may be indicative of ASD, but this is not conclusive.

4.3 Cognitive functioning

There was no record of any previous formal cognitive assessments.

The Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1999) was used as a measure of intellectual ability. It provides information about verbal ('vocabulary' and 'similarities') and performance ('block design' and 'matrix reasoning') subtests, and is reliable, valid, and relatively quick to administer (Wechsler, 1999). While cognitive profiles of individuals with ASDs may be heterogeneous, carrying out the assessment is useful in recognising any specific weaknesses individuals may have,

and therefore in informing recommendations for future care and interventions (Merchán-Naranjo et al., 2012).

On the WASI, CS obtained a Full Scale IQ score of 95 (95% confidence interval 91-99, percentile rank 37, Average range). However, there was a significant discrepancy between her verbal skills (average) and non-verbal skills (low average) indicating her full-scale IQ may not accurately reflect CS's strengths and weaknesses in specific domains (see Table 1). This discrepancy may be indicative of ASD (Merchán-Naranjo et al., 2012).

Table 1.

CS's Scores on the Wechsler Abbreviated Scale of Intelligence

Index	IQ Score*	Percentile Rank	95% Confidence Intervals
Verbal IQ	104	61	98-109
Performance IQ	87	19	82-93
Full Scale IQ	95	37	91-99

**See appendix for scoring classification*

4.4 Educational skills

CS was also assessed using subtests of the Wechsler Individual Achievement Test (WIAT-II^{UK}) (Wechsler, 2001), to provide a measure of her academic functioning. It has good reliability and validity (Wechsler, 2001). By assessing the domains of Word Reading, Spelling, Numerical Operations and Listening Comprehension, it can help identify individuals' academic strengths and weaknesses (Dickerson Mayes & Calhoun, 2008).

CS's WIAT-II scores reflected age-appropriate word reading and spelling skills. Despite appearing motivated to try her hardest, CS obtained a score lower than would be expected for a child of her age on the Numerical Operations subtest. Similarly, CS's standard score on Listening Comprehension was somewhat lower than expected. CS was noted to be less attentive towards the psychologist's instructions during this task, which may have influenced her performance (See Table 2). As was the case for CS's WASI scores, while providing important information to inform future recommendations, the discrepancies in her ability profile do not alone warrant a diagnosis of mood, anxiety or ASD.

Table 2.*CS's Wechsler Individual Achievement Test (2nd Edition) Scores*

Subtest	Standard Score	Percentile	95% Confidence Interval	Age Equivalent
Word Reading	101	53	6	≥16:00
Numerical Operations	71	3	6	9:08
Spelling	107	68	8	≥16:00
Listening Comprehension	80	9	12	10:04

**See appendix for scoring classification*

4.5 Mood and anxiety

The Mood and Feelings Questionnaire (MFQ) (Angold et al., 1995) is a 33-item self-report questionnaire based on DSM-IV criteria for major depressive disorder, designed for adolescents age 8-18. It has good test-retest reliability (0.78), and moderate diagnostic accuracy (Wood, Kroll, Moore, & Harrington, 1995).

The Screen for Child Anxiety Related Disorders (SCARED) (Birmaher et al., 1999) is a widely-used screening tool for anxiety disorders in children and young people. It has good reliability and validity (Monga et al., 2000), and has been used successfully to assess symptoms in young people with ASDs (e.g. Reaven, 2012).

CS and her mother had previously completed both the SCARED and MFQ. CS scored above clinical cut-off on both the Moods and Feelings Questionnaire (MFQ, Angold et al. 1995) and Screen for Child Anxiety Related Disorders (see Table 3).

In the current assessment, CS obtained a total score of 40 on the SCARED indicating the likely presence of an anxiety disorder. Scores on the Panic Disorder, Generalised Anxiety Disorder and Social Anxiety Disorder subscales were all above cut-off indicating that these disorders may have been present, while scores on the Separation Anxiety Disorder and School Avoidance subscales were below cut-off. These results were broadly consistent with those obtained during her previous assessment in April, suggesting there has been little change in these areas. At that time, CS's self-report on the SCARED indicated significant anxiety difficulties, but her mother's report did not meet threshold for an anxiety disorder. Discrepancies on self- and parent- reports of anxiety symptoms are common for adolescents with

ASD (White, et al., 2012). Factors such as unwillingness to disclose features, or lack of insight into symptoms mean the discrepancy is often opposite to that found for CS, with children under-reporting symptoms compared to their parents.

Table 3.

CS's score profile on the Screen for Child Anxiety Related Disorders questionnaire.

Item	Score	Cut-off guideline
Overall	40/82	≥30
Panic Disorder/Significant Somatic Symptoms	13/26	7
Generalized Anxiety Disorder	13/18	9
Separation Anxiety Disorder	1/16	5
Social Anxiety Disorder	12/14	8
Significant School Avoidance	1/8	3

On the MFQ, CS endorsed items such as feeling lonely and feeling as if no-one loves her, but, overall, her score of 19 was below the cut-off of 20 for a mood disorder. This represented a reduction in depressive symptomatology since her previous assessment in April when CS scored 33 on the same instrument (above cut-off for major depression). However, is still relevant to the current assessment as it suggests that subsyndromal features of depression are still present for CS.

4.6 Multidisciplinary team assessments

The Autism Diagnostic Interview-Revised (ADI-R) (Lord, Rutter, & Le Couteur, 1994) is a commonly used assessment tool in the diagnosis of ASDs. It consists of a parent/informant rated interview covering the areas of; reciprocal social interaction; communication and language and; restricted and repetitive stereotyped interests and behaviours. It has good reliability and validity for diagnosis of ASDs (Rutter, Le Couteur, & Lord, 2003). CS's total score on the ADI-R was below clinical cut-off (6). However, it should be noted that the ADI-R is somewhat dependant on historical information regarding developmental milestones during childhood. CS's mother had some difficulty remembering CS's childhood, and was considered by the administering psychiatrist to be a somewhat unreliable informant.

The Autism Diagnostic Observation Schedule (ADOS) is commonly used for assessing Autism and Autism Spectrum Disorders. It consists of a number of structured and semi-structured tasks allowing various elements of social interaction, communication and behaviour to be assessed (Lord et al., 1989). One of 4 modules is used depending on the developmental and language ability of the client (Lord et al., 1999). The current study used Module 4, designed for use in adolescents and adults with fluent speech. Module 4 has been found to be reliable in discriminating ASD from typical development, and other diagnoses such as psychopathy and schizophrenia (Bastiaansen et al., 2010; Lord et al., 1999). CS scored at or above clinical cut-off on all domains of the ADOS.

Hence, although CS's score on the ADI-R was below clinical cut-off, the ADOS suggested that CS may be somewhere on the ASD spectrum. A multi-disciplinary team discussion followed to summarise CS's performance on all domains assessed to inform a clinical decision.

4.7 Multidisciplinary team meeting

A multidisciplinary team meeting was held to discuss our findings. It was determined that given her performance on the ADOS, and information from clinical observations and past history that CS some difficulties in all three areas indicated in the ASD triad of impairments, CS was given a diagnosis of Asperger's syndrome and anxiety with subsyndromal depressive features.

5. Formulation

Given the relationship of anxiety and depression to ASD we formulated that CS's current difficulties may have resulted from a combination of mood, anxiety and ASD symptoms. The symptom overlap between anxiety, mood and ASD symptoms (e.g. reduced eye contact and reduced or unusual social interaction) may have contributed to the failures of previous services to detect her ASD (McPheeters et al., 2011). Furthermore, CS's gender (e.g. Mandy et al., 2012), and her ability to cope with task demands until adolescence (Pearson et al., 2006; Rao et al., 2008) may also have contributed to her missed diagnosis. Given that ASD can increase the risk of developing anxiety and mood disorder (e.g. Bellini, 2004; Brereton et al., 2006) this may have exacerbated these symptoms. We hypothesised that previous generic

interventions targeting her mood and anxiety symptoms may have been ineffective as they were not adapted to account for the neuropsychological features of ASD (e.g. Ozsivadjian & Knott, 2011).

6. Feedback and Recommendations

In order to render our assessment useful, and person-centred, we met with CS and her mother in order to feedback. While a diagnosis alone may have limited utility, the ability to inform future interventions, improve access to services, and introduce coping strategies, such as informing teaching staff of adaptations to help individuals, may be hugely beneficial in improving outcomes (e.g. Ozsivadjian & Knott, 2011; White et al., 2012). It also provided CS and her mother to ask questions to the team, and ensured we were able to assess the family's understanding of outcomes.

During feedback, it became clear that family members had a limited understanding of the implications of an Asperger's diagnosis, and individuals requested further information regarding this. Therefore, CS was invited to attend a girl's group for psycho-education about her new diagnosis. Her mother and sisters were also invited to attend a group for families. It was hoped that this would not only provide access to important and useful information for the family, but also an opportunity to meet others with similar difficulties. Additionally, meeting others with ASD was hoped to improve CS's social skills (e.g. Ozsivadjian & Knott, 2011).

Due to fluctuations in mood, and notable anxiety symptoms, it was recommended that CS's CAMHS continue to monitor these symptoms. They were also encouraged to consider CBT for mood and social anxiety as these were both strongly implicated in the current assessment. Various studies have found that CBT interventions for anxiety and depression can be successful for individuals with ASD (e.g. Tyson & Cruess, 2012).

It was further recommended that CS may benefit from specific help with numeracy and that information regarding her diagnosis should be made accessible for educational staff. The family had reported that to date there had been a number of communication difficulties between CS and her teachers, and CS said that this was the reason that she dropped out of college during the course of our assessment.

Therefore, it was hoped that by providing staff with information about some of the difficulties CS may face, they would be able to adapt their approach to be more helpful for her (cf. Dickerson Mayes & Calhoun, 2008).

Specifically for CS, it was recommended that educational staff be advised about her difficulties and learning needs in order to develop a plan of how best to help and support her. For example, due to CS's difficulties in attention and following task instructions, it was recommended that instructions be broken down and repeated to ensure that she fully understands them. Additionally, due to indications from the assessment that CS may have difficulties with organisation and planning, it was suggested that handouts, checklists, visual timetables, and visual instructions showing CS what has been completed, what remains to be done, and how to proceed may be of benefit for her.

7. Discussion

Despite increasing public awareness regarding ASD, misdiagnosis and failure to recognise features in females (Mandy et al., 2012) and until adolescence or adulthood is not uncommon (Howlin & Moore, 1997). Complications such as co-morbid anxiety and depression may further influence clinician's decisions (McPheeters et al., 2011). The current case presents a stark example of complexities in the diagnostic process, and, the resulting failure by a number of services to provide accessible and appropriate help for an individual in need. CS had been in contact with services for four years. Yet, despite recognising her vulnerability, anxiety and mood difficulties, and difficulties in social interactions, previous assessments had been inconclusive, and interventions failed due to their generic nature.

The current assessment was thorough and multi-dimensional. As indicated in the previous section, information obtained from individual parts of the assessment was insufficient to draw any firm conclusions about the nature of CS's difficulties. Only in the context of her past history, current clinical presentation, and our knowledge of the nature of ASD features and co-morbid anxiety and depression could a comprehensive assessment be designed, conducted, and evaluated.

A thorough assessment of CS's needs provided a rationale for recommendations for future interventions, and a diagnosis enables appropriate psycho-education to be offered. However, it should be acknowledged that there are several limitations to the current study. For example, this was an assessment only; therefore careful monitoring of interventions would be required in order to establish whether or not they appropriately meet CS's needs. Additionally, it may be that observed difficulties are due to another moderating factor that has not been addressed, and CS has in fact neither ASD nor a mood or anxiety disorder.

8. Reflections

Working with CS presented me with a number of unfamiliar scenarios. Unlike the majority of previous clients whom I have seen, CS was known to services and asking for help. There were recognised difficulties with substantial impact on not only her levels of functioning, but also her level of safety. CS's family were literally 'crying out for help', and yet, over a period of four years, the help which CS had received had been limited and ineffective. This was the first time I saw the complications of having a number of co-morbid difficulties which when assessed in individual specialist services did not meet threshold severities, but when treated with a generic therapy did not improve. I learned that with the current service structure in the NHS, sometimes having a diagnosis can, rather than being stigmatizing and undesirable, allow individuals to access the valuable help and resources they may benefit from. A diagnosis in this case also enabled other systems such as CS's school and carers to be educated about how to work with CS's difficulties.

Initially, CS's referral was overwhelming and daunting to me. On paper she looked like a complex case who had been passed from pillar to post and whose difficulties no-one wanted to confront. However, the assessment process enabled me to challenge my anxieties. Carefully exploring the various hypotheses discussed in supervision enabled us to start finding/ruling out answers to the multitude of questions we had. Over the weeks that we saw her, CS's story turned from one of hopelessness to hopefulness, for both her and me!

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Appendix

IQ Scoring classification

An IQ/index score of:

- >130 would be classified as being in the 'very superior' range
 - 120-129 would be classified as being in the 'superior' range
 - 110-119 would be classified as being in the 'high average' range
 - 90-109 would be classified as being in the 'average' range
 - 80-89 would be classified as being in the 'low average' range
 - 70-79 would be classified as being in the 'borderline' range
- <70 would be classified as being in the 'extremely low' range and associated with different levels of learning disability

Case Study 4

Cognitive Behavioural Therapy for a 22-year-old woman with anxiety, autism and a mild learning disability.

Supervised by: Dr. Fahimeh Shanghai

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1. Abstract

This case study explores current understanding of treatment approaches for anxiety and autism in the context of a mild learning disability. It then summarises the assessment and treatment of a 22-year-old autistic woman with a specific phobia of others chewing food. Outcomes are discussed and reflections on the case explored.

2. Literature Review

2.1 A definition of Autism

Autism, one of a number of Autism Spectrum Disorders (ASDs), is a developmental disorder defined by impairments in areas of social communication, social interaction, and stereotyped or repetitive behaviours (American Psychiatric Association, 1994). Additionally, delays or abnormal functioning in social interaction, language as used in social communication, and or symbolic or imaginative play are necessary for a diagnosis (APA, 1994). Autism differs from Asperger's syndrome in which no significant delay in language or cognitive development is necessary for a diagnosis (Ashwell, 2009). The presentation of autistic features is heterogeneous among individuals (Johnson & Myers, 2007), and whilst for some with autism impact on activities of daily life and functioning may be minimal, for others difficulties can be profound (Eves & Ho, 2008; National Research Council, 2001).

Children and young people with ASD are most likely to come into contact with mental health services at times of transition (Tantam, 2003). Whilst there is little research in this area to date, some suggest that increases in academic demands (Mattila et al., 2011; Mayes et al., 2009) or difficulties with new intimate relationships formed in early adulthood (Semple & Smythe, 2009) may lead to difficulties coping, anxiety and distress at these times.

2.2 Learning Disability and Autism

In the United Kingdom, a 'Learning Disability' (LD) is defined by: 1) a significant impairment in intellectual functioning (IQ below 70); 2) Significantly impaired social adaptive functioning; and 3) onset before adulthood (Alves et al., 2000). Prevalence estimates indicated about 20 in 1000 UK individuals have mild (IQ 50–69) to moderate (IQ 36–49) LD, and 3–4 in 1000 have severe (IQ 21–34) or profound (IQ 20 or lower) LD (Department of Health, 2001). Individuals with LDs have a shorter

life-expectancy (NICE, 2010), and are more likely to die from a preventable cause of death (McGuigan et al., 1995). Although not necessary for a diagnosis of ASD, learning disabilities are common for individuals with ASD (Johnson & Myers, 2007).

2.3 Co-morbidities

Co-morbid anxiety disorders are common for individuals with ASD (e.g. Green, Gilchrist, Burton, & Cox, 2000; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000; Reaven, 2011) and LDs (Dekker & Koot, 2003). Indeed, evidence suggests that those with developmental disabilities are more at risk of developing anxiety disorders than typically developing individuals (Reaven, 2011). A recent meta-analysis by van Steensel, Bogels and Perrin (2011) found 39.6% of children and adolescents with ASD had at least one co-morbid anxiety disorder. This compares to estimates of 2.2–17% of anxiety disorders in typically developing children (Costello, Egger, & Angold, 2005). The most common anxiety disorder found in ASD individuals was specific phobia (see *Figure 1 for definition*) (29.8%) (van Steensel et al., 2011). Difficulties with anxiety and emotions may be more common in females than males with ASD (Hartley & Sikora, 2009; Lang, Regeister, Lauderdale, Ashbaugh, & Haring, 2010).

Figure 1: DSM-IV Criteria for Specific Phobia

- | |
|--|
| <p>A. Marked and persistent fear that is excessive/unreasonable due to presence/anticipation of a specific object/situation.</p> <p>B. Exposure to specific object/situation almost invariably leads to immediate anxiety response.</p> <p>C. Person recognises the fear is excessive or unreasonable.</p> <p>D. Object/situation is avoided, or endured with intense anxiety/distress.</p> <p>E. Fear interferes significantly with functioning/life or causes marked distress.</p> <p>F. Not better accounted for by something else.</p> |
|--|

2.4 Treatment Approaches

Whilst autism is thought to be lifelong (Levy, Mandell, & Schultz, 2009), several treatment strategies aimed to help reduce distressing symptoms exist. There is limited evidence for treatment of anxiety disorders in individuals with ASDs and/or intellectual disabilities (e.g. Hagopian & Jennett, 2008; Lang et al., 2010; Rapp, Vollmer & Hovanetz, 2005). However, a number of single case studies and small-

scale evaluations have shown promising results. For example, 'contact desensitisation' (gradually exposing an individual to their feared stimulus using a graded hierarchy, and shaping behaviour using positive reinforcement) (Ricciardi, Luiselli, & Camare, 2006), graded exposure (e.g. Hagopian & Jennett, 2008; Ricciardi et al., 2006), and modelling (e.g. Love, Matson, & West., 1990), have all demonstrated some efficacy in reducing anxiety symptoms in this population.

There is a growing evidence base for the use of Cognitive Behavioural Therapy (CBT) in treating anxiety disorders for children with ASD (e.g. Sofronoff, Attwood, & Hinton, 2005; Reaven et al., 2011). CBT has traditionally been used in the general population for the treatment of mental health difficulties such as depression, anxiety, and eating disorders (e.g. Beck, Rush, Shaw, & Emory, 1979; Fairburn, Cooper, & Shafran, 2003). It is based on the theory that psychological symptoms relate to thoughts, emotions, physical sensations, and behaviours, and interventions typically involve identifying and changing maladaptive thoughts and behaviours which may be maintaining difficulties (Beck et al., 1979). The use of CBT in ASD and LD populations has been the subject of some debate (e.g. Dagnan & Chadwick, 1997; Dagnan & Jahoda, 2006; Haddock & Jones, 2006; Lang et al., 2010). For example, impairments in language and social skills and difficulties in recognising thoughts and feelings in themselves and others related to autism and LD may affect individuals' ability both to utilise CBT and to engage in a therapeutic relationship (Lang et al., 2010).

In 2010, Lang et al. reviewed the state of treatment of anxiety in ASDs using CBT. They concluded that CBT was effective in treating anxiety in individuals with Asperger's, although had insufficient sample sizes to demonstrate a similar effect for individuals with autism (Lang et al, 2010). Additionally, they note that emphasis on the behavioural rather than cognitive (specifically introspection) components of CBT may be helpful in this population (Lang et al., 2010). For example, using visual aids, adapting mainstream information to be more accessible, and using simple, clear language in verbal communication (e.g. Attwood, 2004) , describing behaviours in concrete terms and teaching practical skills may all be helpful in increasing the efficacy of CBT for individuals with ASDs (Lang et al., 2010).

3. Case Description

Two initial assessment sessions were carried out in order to ascertain the main presenting problem and relevant background history. This included a combination of questionnaires (see ‘assessment measures’ section) and a semi-structured clinical interview. This information helped establish whether the DSM-IV diagnostic criteria for a specific anxiety disorder were met. Differential diagnoses (including specific phobia, social phobia and OCD) were considered.

3.1 Reason for referral

SH was originally referred by her social worker following concerns that a fear of being on public transport when people were chewing food was causing distress. As a result her mood and ability to function (for example, travelling to her local youth group) were significantly affected.

3.2 Presenting problem and history of complaint

SH described her main difficulty as relating to people chewing on public transport. She reported it was worse when the bus or train were crowded. She travelled only by bus but would frequently have to terminate journeys early and walk long distances home when she could not afford to catch another bus. SH also described difficulties in falling asleep, and she said her mood was ‘a bit mixed,’ and when she felt anxious she would sometimes pick her skin.

3.3 Personal and psychiatric history

SH is a 22-year-old Black British woman living at home with her mother and younger brother. Her parents divorced two years ago and she sees her father about twice a week. She previously attended a specialist school for children with autism. SH attends a youth club once a week and has no other regular activities.

SH was diagnosed with childhood autism aged 5, and seen at a children and adolescents services for help managing behavioural difficulties and aggressive outbursts. She was prescribed Sertraline which her and her family reported helpful in reducing challenging behaviours. She was additionally diagnosed as having a mild learning difficulty. SH’s difficulties during adolescence included obsessions related to numbers, letters, computer games and television programmes. In late

adolescence and early twenties, the content of SH's worries shifted from numbers and letters to a fear of people chewing food, especially in crowds.

SH was transferred to adult services aged 18. She was assessed jointly by psychology and psychiatry. At this point SH chose to stop taking medication due to unwanted side-effects and after difficulties engaging with psychology, the case was closed.

3.4 Previous treatment

SH was seen by a child psychologist at around age 9 in relation to her obsessions with numbers and letters. The intervention had limited success.

4. Aims of Study

The current intervention hence aimed specifically to target SH's 'chewing phobia'. Additionally, it sought to integrate session work with SH's wider goals, by working together with outreach support workers in order that anxiety coping strategies could be generalised enabling SH to attend community activities.

5. Formulation and model

Information obtained at assessment revealed that SH had a specific fear of people chewing. In order to design an appropriate intervention, it was formulated that SH's current difficulty, specific phobia, may result from vulnerability factors such as her developmental disability (Reaven, 2011) and gender (Lang et al., 2010; Hartley & Sikora, 2009). Although unable to identify a specific trigger to this, SH identified the onset had been during late adolescence. It is likely that precipitating factors such as her transition from child to adult services and school to independent living (Tantam, 2003) may have contributed to SH's presentation to services at this time.

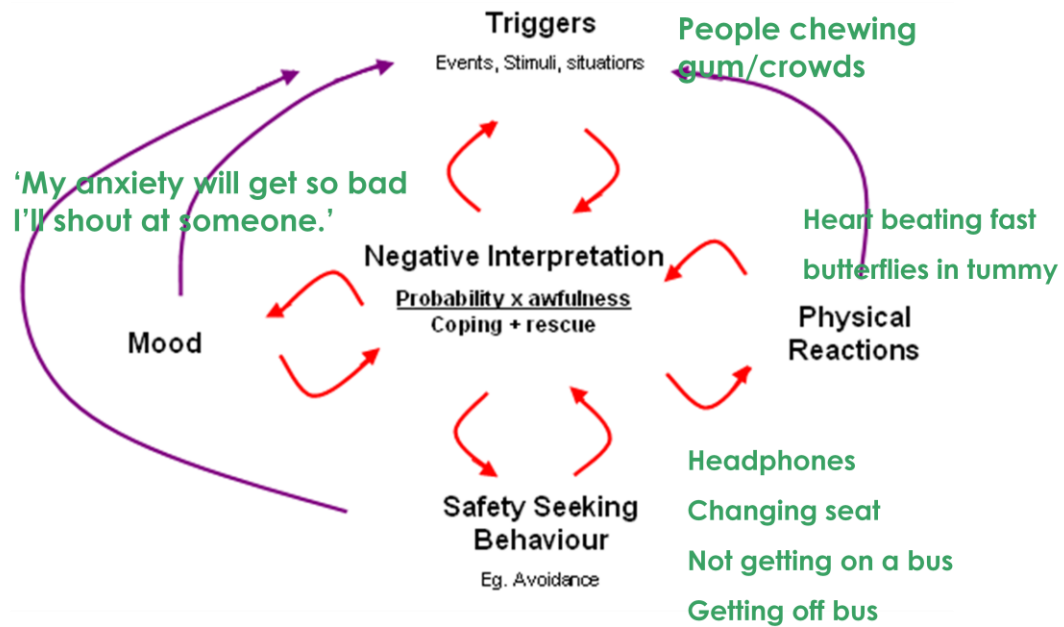
SH described her presenting difficulty as worries about people chewing which were triggered when she noticed people chewing on public transport. She described experiencing physical sensations of anxiety such as feeling butterflies in her stomach, and that her chest was going to explode. Her description of her difficulties and the related distress were consistent with the DMS-IV criteria for 'specific phobia' (See Figure 1).

A CBT framework for specific phobia (cf. Chorpita & Daleidan, 2009) was used to explore potential maintaining factors for SH's difficulties. For example, SH reported a number of unhelpful coping strategies, such as avoidance of symptoms (not getting on buses/getting off the bus) which we hypothesised would prevent her from discovering new evidence relating to her appraisals of her anxiety symptoms. Protective factors included her adoption of some helpful coping strategies such as using headphones so as to reduce anxiety levels but remain in distressing situations, and her willingness to engage in the current intervention (see Figure 2). We formulated that a CBT intervention suitably modified for SH's level of learning ability and ASD symptoms would be helpful in targeting maintaining factors of SH's current distress.

An adapted version of the formulation, with pictographic information and a simplified explanation of current symptoms and maintaining factors was shared explicitly with the client.

6. Design

This was not a self-referral; therefore SH's consent for treatment was obtained prior to starting (Mental Capacity Act, 1995). SH was seen for an initial assessment and two CBT suitability assessments, followed by 16 sessions of CBT. Outcome measures were completed pre-, mid- and post- sessions, and an anxiety rating scale was used on a weekly basis.

Figure 2: A CBT model for SH's specific phobia

c.f. Chorpita & Daleiden, 2009

7. Intervention

7.1 Session Outline

Sessions followed the CBT model for specific phobias, more sessions than is standard were provided in order to compensate for possible slower acquisition of knowledge and to allow for multi-agency working to be facilitated.

7.2 Assessment & Goal Setting

We carried out a CBT suitability assessment to determine whether a CBT model for the treatment of Specific Phobia (e.g. Öst, 1989; Öst & Ollendick, 1999) would be appropriate to use. SH passed 5 out of 8 stages of this assessment, indicating she was able to identify and understand thoughts and feelings in herself and others. However, during the final parts of assessment, SH reported that she was frustrated by the number of tests and did not wish to continue. Given her history of disengagement, it was decided to commence treatment using a version of CBT for Specific Phobia, adapting where necessary to suit SH's needs, rather than to continue with the suitability assessment.

SH identified her goals for the current therapy as a reduction in her anxiety about people chewing on public transport and an increase in her independence and involvement with community activities.

7.2 Treatment

1–2 Psycho-education about anxiety & cognitive re-structuring

The initial sessions involved psycho-education about anxiety symptoms. SH was good at identifying physical sensations of anxiety in herself and others. We talked about the ‘anxiety curve’ and used idiosyncratic examples (for example SH’s prior fear of spiders which she had been able to overcome) to discuss how anxiety symptoms eventually plateau and decrease, rather than continuing to increase. SH was able to understand how avoiding anxiety-provoking situations may provide short-term relief from symptoms, but ultimately exacerbates them.

3–4 techniques for managing anxiety

SH was taught a number of ‘tools’ for managing her anxiety (c.f. Attwood, 2004). She practiced a slow-breathing exercise initially in-session, and subsequently for homework. Additionally, SH was taught a relaxation exercise using guided-imagery, and given a stress ball to help reduce anxiety symptoms. SH reported finding all except the guided-imagery exercise helpful.

We also used pictures to help boost learning and aid memory (cf Lang et al., 2010). We created wallet-sized anxiety coping prompt cards for SH. These identified her primary symptoms, and the coping strategies she had learnt.

3–6 in-session exposure

We designed together a behavioural experiment to help SH test out her predictions related to hearing someone chewing. We agreed that the therapist would chew some chewing-gum loudly for a period of 30 seconds. SH predicted that she would leave the room after 10 seconds and that her anxiety would be at 5/5 on an anxiety rating scale throughout. Prior to the initial exposure, she was notably anxious, for example, fidgeting, standing up, and speaking in a high pitch. She rated her anxiety as 5/5. She was able to remain seated for 10 seconds, and noted that her anxiety reduced to 3/5. Over subsequent sessions, exposure time was gradually increased and anxiety ratings and predictions were taken pre- and post- exposure.

7–10 in vivo exposure

It was somewhat difficult to stick rigidly to the CBT approach which encourages graded step-by-step exposure to stimuli with increasing levels of difficulty (Chorpita & Daleiden, 2009). SH was able to identify a hierarchy of fears. However, these involved variables that were difficult to control. For example, she identified that being on a bus with one person chewing would be less distressing than being on a bus where several people were chewing. Similarly, a crowded bus would be more anxiety-provoking than an empty one. However, we were able to vary the number of stops that SH travelled. Therefore, over the course of sessions, we gradually increased the length of time that SH spent on buses. Buses were invariably crowded, and generally contained at least two people chewing. Anxiety ratings were taken before, during and after. Additionally, SH's predictions 'I won't be able to get on the bus'; 'I will have to get off the bus'; 'I will shout at somebody' were tested out during each journey.

SH was also encouraged to take regular bus journeys in the time between sessions, while recording her anxiety before, during and after, and practising her anxiety management strategies.

11–15 Co-ordinating with other agencies, continued exposure, and revision

SH identified an increase in activities and independence as goals for treatment. We discussed the possibility of accessing an outreach support worker as SH was deemed eligible by social services. SH agreed that she would like this, but that she was nervous about meeting someone new. She therefore chose for them to attend sessions and learn about the work we had been doing together. This was intended to serve the dual purpose of introducing SH to her outreach worker in a 'safe' environment, and enabling others to learn of the current intervention strategy in order that it might be implemented more frequently outside of sessions.

16 Staying well plan

SH displayed throughout sessions a talent for graphic design and publishing. She also spoke regularly about her interest in a computer games character. Her 'Staying Well' pack was therefore designed collaboratively using the character as inspiration.

We went through the Staying Well plan together in session, and SH was also able to talk through it with her support worker. This also provided the opportunity for her to consolidate what she had learned, as well as predicting potential pit-falls such as increased anxiety which might lead to a decrease in frequency of exposure tasks.

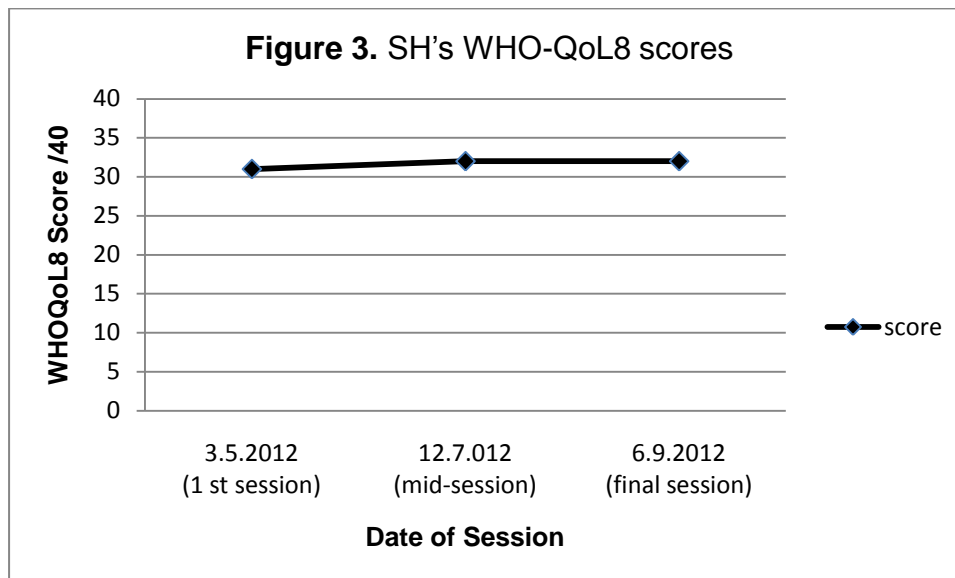
8. Assessment measures

A number of routine outcome measures are typically administered at the start and end of therapy sessions with clients in the South London and Maudsley (SLaM) NHS trust to enable the evaluation of therapeutic interventions and degree of improvement in areas such as symptoms reduction and quality of life. One such measure is the CORE-LD, a version of the CORE-OM developed by therapists and adults with learning disabilities. It assesses; well-being, symptoms, functioning and risk (Brooks & Davies, 2011). SH found this difficult to complete. Her answers were significantly delayed, and she was easily distracted. She reported finding the questionnaire boring, and that she did not wish to continue completing it. In order to minimise SH's distress, and foster engagement (SH had a history of disengaging from services), she completed the briefer and more accessible World Health Organisation – Quality of Life Assessment 8 (WHO-QoL8) (Power, 2003) instead.

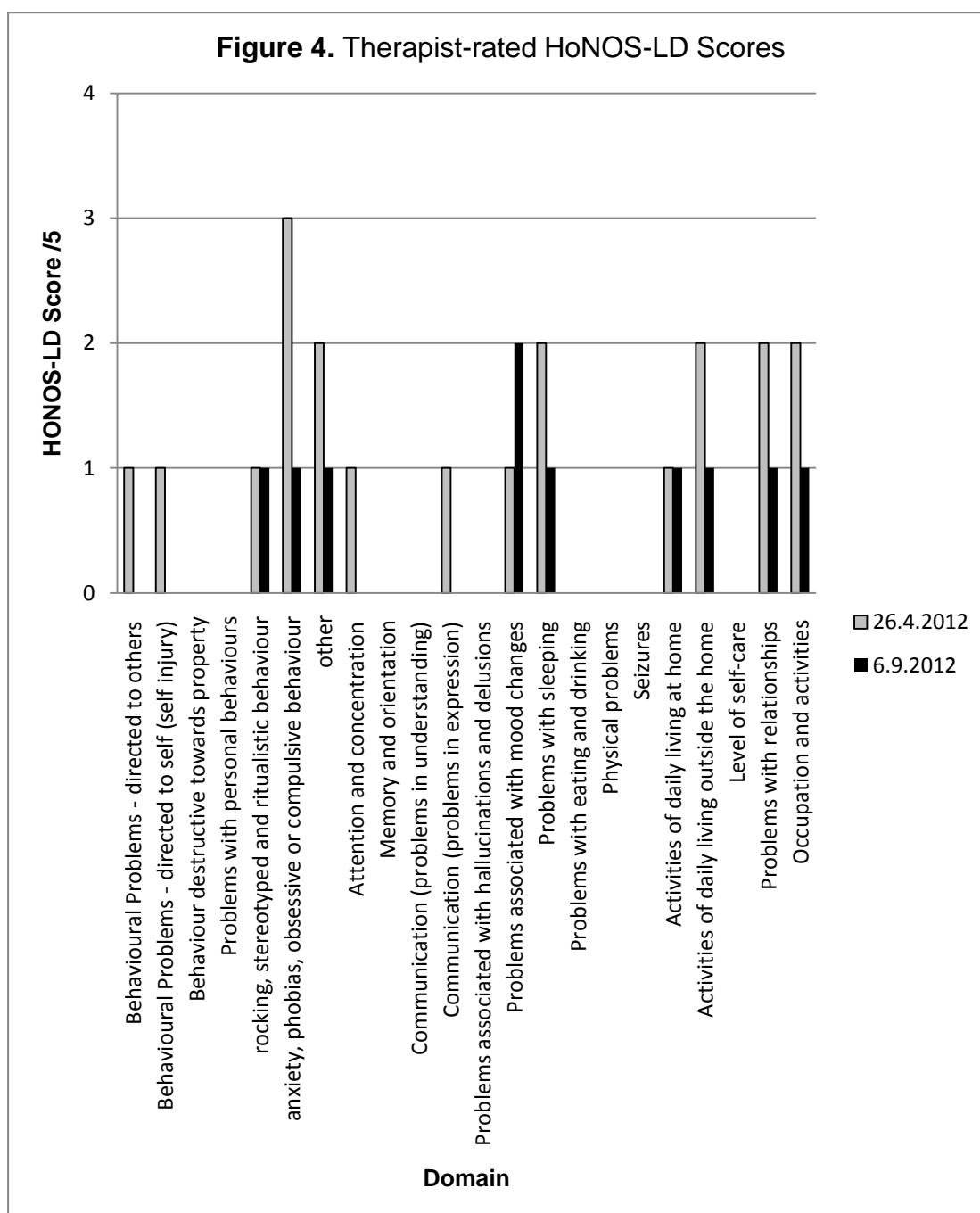
Additionally, the therapist-rated Health of the Nation Outcome Scales for People with Learning Disabilities (HoNOS-LD) (Roy, Matthews, Clifford, Fowler, & Martin., 2002) was completed at initial assessment and following treatment. This is an 18-item therapist-rated measure of risk and vulnerability. It is valid and reliable for use in 'learning disabled' clients with mental health difficulties (Roy et al., 2002). Each domain is rated between 0 (no problem) and 4 (very severe problem) according to the degree of difficulties clients have in that area (Roy et al., 2002).

In addition, a 5-point anxiety rating scale was used during sessions to measure SH's anxiety levels, and idiosyncratic predictions were tested on a session-by session basis. Rather than a percentage certainty rating of whether or not predictions would come true as is typically used, a dichotomous yes/no scale was used as it was found to be more accessible for SH. No predictions came true in any session; results are therefore not reported in the current study.

9. Outcomes



The self-rated quality of life questionnaire, the WHOQoL-8, indicated no significant changes in SH's quality of life across sessions. The therapist-rated HoNOS-LD and self-report indicated an improvement in her level of functioning and reduction of distress related to being around people chewing on public transport. She said she was now able to remain on crowded buses with people chewing, and felt in control of her anxiety. The number of bus journeys SH reported taking between sessions increased between the start and finish of therapy. However, SH reported lack of money, and lack of purposeful activities to travel to as difficulties in motivating herself to use public transport.



10. Discussion

The current case study indicates that adapted CBT for specific phobias in young people with autism and mild learning disabilities can be effective in reducing anxiety and increasing exposure to phobic stimuli. Although self-report questionnaire measures did not reflect any substantial improvement in quality of life, therapist-rated, verbal self-report and objective measures, such as the number of bus journeys completed successfully and levels of anxiety during travel, indicated a substantial improvement in SH's symptoms. Additionally, the current case highlights the importance of social factors in the maintenance of individuals' difficulties.

There are a number of limitations of this case. For example, difficulties such as SH's distress when computer game characters die, that were not addressed or evaluated during the current intervention. In addition, it is difficult to know how well what SH has learnt will generalise, for example to trains and tubes should she need to get these in the future. SH had just begun to work with a support worker at the end of sessions. It is predicted that the extent to which gains are maintained may depend in part on the degree to which her support workers continue to encourage her to use public transport. A further limitation of the current study is that there was no follow-up after therapy to ascertain therapeutic gains.

SH was taught anxiety management strategies such as deep breathing exercises and using a stress ball. Some have argued that this provides clients with additional safety behaviours (Salkovskis, Clark, Hackmann, Wells & Gelder, 1999), and may not be helpful in shifting underlying maladaptive beliefs about symptoms. It was however agreed that due to the difficulty in accessing SH's underlying cognitions, and increase in functioning that would result from her ability to access public transport without distress, teaching SH anxiety management strategies would be appropriate for the purpose of the current study.

A further limitation established during SH's sessions was the utility of standard outcome measures. SH found many of these difficult to complete, and those which she did complete took a substantial time to administer. Additionally, whilst some measures, such as the WHO-QoL8 reflected limited change in her outcomes. Self-report, and therapist-rated and idiosyncratic measures indicated a substantial improvement in SH's ability to cope when around people chewing, reduction in anxiety and increase in activities. Hence, there appears to be a disparity between self-report questionnaire and other outcome measures. There are a number of explanations for this, for example it may reflect difficulties for people with learning disabilities in completing written questionnaires (Brooks & Davies, 2011), or therapist biases.

11. Reflections

I was particularly impressed at the rate at which SH became acculturated to the CBT model. She was able to utilise it rapidly and what was a relatively simple intervention appeared to have a large impact on her self-reported functioning. It would have been easy to become diverted by any of the number of other difficulties which became apparent during the course of the intervention, such as preoccupations about relationships and the end of the world, but focusing on something specific helped contain the sessions.

This case was a further illustration of the frustrations of ‘practical barriers’. Sessions using public transport were delayed as SH’s access to her personal budget was not granted initially. Further, an application for a Freedom Pass was made within the first two weeks of sessions; however, after six months of working with SH, still no Freedom Pass had arrived. I was aware during our work of the difficulties faced by an individual who may not necessarily be able to advocate for themselves, or who is unaware of their rights and entitlements.

It struck me that my role as a psychologist was broader than that as a therapist during the session, and at times the additional time required for ‘extra’ contacts such as successfully contacting social services could feel challenging. However, it was also a good example of the eventual success of multi-agency working. Without the continued support of an outreach worker to help SH identify future activities and courses she might like to do, and use public transport in order to strive towards these goals, it is unlikely positive gains would be maintained.

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